



RISK MANAGEMENT DOCUMENTATION for PLANT and/or PROCESS (Risk Assessment)

DATE OF ASSESSMENT : <i>December, 2010</i>	PLANT and/or PROCESS DESCRIPTION : <i>MINI-LOADER</i>	ORGANISATION : <i>VIKING MINI LOADERS Pty Ltd</i>
ASSESSMENT CONDUCTED BY : <i>HEALTH & SAFETY ENGINEERING PTY LTD</i>	RISK ASSESSMENT METHOD USED : <i>SAFETY REVIEW</i>	ADDRESS : <i>Factory 25, 172 Canterbury Road Bayswater North, Victoria 3153</i>

NOTES:

1. *“Management of the unit” means the “person” legally responsible for the use of the unit; it generally means the employer, the company or the legal entity that has responsibility under the Health and Safety legislation in the State or Territory in which the unit is being used.*
2. *Some items refer to hazards, which can exist if the unit is not adequately maintained – eg. Guards not fitted, gauges fail to correctly display readings etc.. The measures listed to control risks arising from this type of hazard include reference to operating procedures. Operating Procedures **do not** make the operator responsible for inadequate maintenance/repairs etc. The reference is only included to ensure that such Procedures include the need for the operator to report any faults detected by him/her.*
3. *This Hazard Identification and Risk Assessment has been prepared based on information available at the date of publication and it therefore has a limited lifespan. This Risk Assessment **MUST** be reviewed by all stakeholders and revised :*

- (a) At least annually and after any accident or near miss,*
- (b) According to the particular circumstances under which the plant and/or process is used and maintained,*
- (c) As new hazards are identified or as risks are reassessed,*
- (d) As new or revised control measures are implemented,*
- (e) As and when work procedures are altered.*

Although every attempt has been made to identify reasonably foreseeable circumstances, no guarantee as to the completeness of this assessment is implied or provided.

4. *The “Preliminary” watermark is placed on the document by **Health and Safety Engineering Pty. Ltd.** to indicate that in their assessment of the circumstances, the Controls listed in **Columns C and F** are practicable ways of controlling the risks arising out of the Hazards listed. The “Preliminary” watermark should remain in place until the “Management of the Unit” agree that assessment is complete and that the controls listed in the assessment are practicable for their (Management’s) purposes.*



5. **Column X** has been provided on the document to allow the “Management” to record that the Hazard Identification, Risk Assessment, Risk Control process has been completed and that all controls are in place and are operating. When **Column X** is completed, the document then becomes a record of the completeness of the process and of the documentation (subject to any changes which need to be further reviewed in accordance with Item 3 above).
6. The conventions used by **Health and Safety Engineering Pty. Ltd.** in this document to describe potential consequences, and likelihood that those consequences may occur are as follows: for potential consequences, F = Fatality; S = Severe Injuries; M = Medium Injuries, L =Light Injuries; and for likelihood, H = High Risk; M = Medium Risk; L = Low Risk. Because consequences and probabilities can both be expressed in so many different measurables, no attempt has been made here to quantify them.
7. This document has been developed in accordance with the requirements of the OH&S Regulations 2007. The risks have been assessed on the basis of the information available to **Health and Safety Engineering Pty. Ltd.** at the time this document was prepared. **Health and Safety Engineering Pty. Ltd.** has based this assessment on its own experience and expertise using a Qualitative Analysis of the potential consequences and the likelihood that those consequences may occur. There has been no attempt to prioritise the risks either in relation to each other or in relation to the company’s budgetary position. It is the view of **Health and Safety Engineering Pty. Ltd.** that such rankings are the prerogative of the company management after appropriate consultation.

RISK ASSESMENT BRIEFING	CUSTOMER REPRESENTATIVE
COMPANY:	COMPANY:
NAME:	NAME:
SIGNATURE:	SIGNATURE:
POSITION:	POSITION:
DATE:	DATE:



A	B	C	D	E	F	G	H	X
Hazard No.	Hazard Description - (the situation or parts of plant which could cause injury or illness)	Is There a Risk ?			Proposed SUPPLEMENTARY risk control measure	Are the control measures practicable? Yes/No	For Action by whom	Confirmation that the necessary action has been completed
		Describe the risk control measures ALREADY implemented	Consequence	Likelihood				
1.	DESIGN							
1.1	Persons may be injured due to faulty design of the machine	Mini-Loader designed in accordance with appropriate standards and conservative design principles HID-RA undertaken by Designer in accordance with the requirements of the OH&S Regulations 2007	F	L	- Loader designed by professional engineer who has provided certification to Manufacturer regarding safe loads, stability margin etc. - Progressive analysis and testing of design during build process - Prototype testing carried out & design/build rectification progressively done as necessary - Final performance testing carried out	Y	Designer & VIKING MINI LOADERS	Y
2.	MANUFACTURE							
2.1	Persons may be injured due to manufacturing faults	- Prototype of machine inspected during manufacture by the designer - Prototype machine tested by manufacturer and designer.	F	L	- As Above; AND - Individual machines inspected and signed off according to purpose designed checklist prior to sale - Purchaser to be supplied with "Sales Package" of standard information	Y	As Above	Y
2.2	Persons could be injured as a result of manufacturer failing to provide sufficient information to purchasers	- Manufacturer's "Operation and Maintenance Manual" provided; AND. - Purchaser Information Package provided at time of purchase includes HID/RA/RC & documentation to enable clients to adequately train operating staff - Follow up technical advice available from manufacturer.	F	L	- As Above; AND - Purchaser to be asked to accept delivery subject to sign off for having received "Sales Package" of standard information	Y	As Above	Verbal Manual to follow



A	B	C	D	E	F	G	H	X
Hazard No.	Hazard Description - (the situation or parts of plant which could cause injury or illness)	Is There a Risk ?			Proposed SUPPLEMENTARY risk control measure	Are the control measures practicable? Yes/No	For Action by whom	Confirmation that the necessary action has been completed
		Describe the risk control measures ALREADY implemented	Consequence	Likelihood				
3.	OPERATION							
3.1	Persons could be injured when following a poor system of work in relation to the operation of this Mini Loader.	<ul style="list-style-type: none"> - As Above; AND - Each purchaser will receive briefing and explanation about information contained in “Sales Package” - If sold through dealer network, distribution conditional upon dealer agreeing to provide manufacturer’s information & briefing about relevant health & safety issues 	F	L	<ul style="list-style-type: none"> - Management of the unit to establish Safe Work Procedures (SWP’s) for operation of the Mini-Loader; AND - Ensure SWP’s cover the operation of this Mini-Loader, local operating conditions and comply with the requirements in the Operator’s Manual. In particular, ensure operators understand limitations of the Loader and need for maintenance. 	Y Y	Manufacturer & Management of the Unit	
3.2	Persons could be injured or injure others when operating the unit without sufficient information, instruction, training and supervision.	<ul style="list-style-type: none"> - As Above; AND “Management of the Unit” to ensure adequate information, instruction, training & supervision provided for loader operators. 	F	L	<ul style="list-style-type: none"> - Management of the unit to ensure that SWP is effectively implemented; AND - Operator has read and understands training and instructions (which must include Manufacturer’s and local information). 	Y	As Above	
3.3	Persons could be injured if the unit is operated by persons under the influence of drugs and/or alcohol.	<ul style="list-style-type: none"> - Manufacturer’s “Operation and Maintenance Manual” provided, - Documentation provided to purchaser to enable him/her to adequately train operating staff, - Follow up technical advice available from manufacturer 	S	L	<ul style="list-style-type: none"> - As Above; AND - Management to ensure that the operator’s performance is unaffected by alcohol or other drugs; AND - Instruct the operator that driving/operation while under the influence of alcohol or drugs is prohibited. 	Y Y	Management of the Unit	
3.4	Persons could be injured if the operator’s performance is inhibited by poor health or medication with side effects.	As Above	S	L	Instruct the operator that he/she must report to the supervisor if suffering poor health which could affect safe operation.	Y	Management of the Unit	



A	B	C		D	E	F	G	H	X
Hazard No.	Hazard Description - (the situation or parts of plant which could cause injury or illness)	Is There a Risk ?			Proposed SUPPLEMENTARY risk control measure	Are the control measures practicable? Yes/No	For Action by whom	Confirmation that the necessary action has been completed	
		Describe the risk control measures ALREADY implemented	Consequence	Likelihood					
3.5	Persons could be injured if the operator's performance is inhibited by excessive fatigue.	As Above	S	L	<ul style="list-style-type: none"> - Safe work procedures implemented; AND - operator instructed that SWPs are to be followed at all times; AND - Operator adequately trained. 	Y	Management of the Unit		
3.6	Persons could be injured if the operator's vision is impaired by sunlight or bright lights in close proximity.	As Above	S	L	<ul style="list-style-type: none"> - Instruct the operator to wear sunglasses or other form of suitable eye protection; AND - if protection unavailable discontinue operation. 	Y Y	Management of the Unit		
3.7	Persons could be injured if the unit is operated while not wearing appropriate PPE.	As Above	S	L	<ul style="list-style-type: none"> - Provide specification for appropriate PPE including gloves, safety glasses, hard hat safety footwear and hearing protection if necessary; AND - Instruct operators on the requirements for its use; AND - Ensure PPE is inspected and certified on a routine basis. 	Y Y Y	Management of the Unit		
3.8	Persons could be injured due to excessive exposure to UV.	As Above	S	L	<ul style="list-style-type: none"> - Determine specification for appropriate UV protection; AND - Provide UV appropriate protective; AND - Instruct operators on the requirements for its use; AND - Ensure procedures are audited routinely. 	Y Y Y	Management of the Unit		
3.9	Persons could be injured by movement of the bucket (or other attachments) in unsafe circumstances	As Above	S	L	<ul style="list-style-type: none"> - Instruct the operators relating to their operational responsibilities during use, particularly about ensuring person(s) are not in a position to be injured during movement of the bucket (or other attachments). 	Y	Management of the Unit		



A	B	C		D	E	F	G	H	X
Hazard No.	Hazard Description - (the situation or parts of plant which could cause injury or illness)	Is There a Risk ?			Proposed SUPPLEMENTARY risk control measure	Are the control measures practicable? Yes/No	For Action by whom	Confirmation that the necessary action has been completed	
		Describe the risk control measures ALREADY implemented	Consequence	Likelihood					
3.10	Persons could be injured if the unit is operated without the guards which have been supplied and fitted by the manufacturer, or by debris that is ejected the attachment.	<ul style="list-style-type: none"> - As Above; AND - Where practicable, guards installed over dangerous parts - Unit undergoes pre-delivery inspections (controlled by supplier's checklist) 	S	L	<ul style="list-style-type: none"> - Advice provided that equipment is not to be operated unless guards and suitable barricades are in place and in good condition; AND - Decals attached warning about need for guards to be in place. 	Y	Management of the Unit		
3.11	Persons could be injured as a result of the unit being operated in small, restricted or confined spaces from which exhaust emissions cannot safely dissipate	<ul style="list-style-type: none"> - Manufacturer's "Operation and Maintenance Manual" provided, - Documentation provided to purchaser to enable him/her to adequately train operating staff, - Follow up technical advice available from manufacturer 	F	L	Management of the Unit to ensure that: <ul style="list-style-type: none"> - Particular SWP's are developed and implemented to deal with small working areas from which escape or rescue is difficult, or in which persons may be trapped or suffer the effects of exhaust emissions), - If necessary, barricade or restrict entry to the location where operations occur, - If necessary, ensure unauthorised persons cannot enter the restricted work area without adequate controls being in place. 	Y	Management of the Unit		
3.12	<ul style="list-style-type: none"> - Persons could be injured if the operator is distracted by noise. - Operator or other persons in the vicinity could suffer hearing loss as a result of excessive noise levels. 	<ul style="list-style-type: none"> - Manufacturer's "Operation and Maintenance Manual" provided, - Documentation provided to purchaser to enable him/her to adequately train operating staff, - Follow up technical advice available from manufacturer 	S	L	Unit manufactured to operate at less than 85 dB(A) Management to ensure that noise levels are within the local statutory requirements for that jurisdiction, AND Instruct all operators to wear earmuffs or some other form of suitable PPE, and to follow SWP developed by the management of the unit.	Y	Management of the Unit		



A	B	C		D	E	F	G	H	X
Hazard No.	Hazard Description - (the situation or parts of plant which could cause injury or illness)	Is There a Risk ?			Proposed SUPPLEMENTARY risk control measure	Are the control measures practicable? Yes/No	For Action by whom	Confirmation that the necessary action has been completed	
		Describe the risk control measures ALREADY implemented	Consequence	Likelihood					
3.13	Persons could be injured if the machine is accidentally started while storing, adjusting or servicing any attachments.	<ul style="list-style-type: none"> - Manufacturer's "Operation and Maintenance Manual" provided, - Documentation provided to purchaser to enable him/her to adequately train operating staff, - Follow up technical advice available from manufacturer 	S	L	Safe work procedures to be implemented; Operators instructed that SWPs are to be followed at all times; Operator adequately trained – ALL responsibility of the management of the unit.	Y	Management of the Unit		
3.14	Persons could be injured if the unit or an attachment strikes an unknown or unfamiliar object while operating. eg. underground gas or electrical supplies.	<ul style="list-style-type: none"> - Manufacturer's "Operation and Maintenance Manual" provided, - Documentation provided to purchaser to enable him/her to adequately train operating staff, - Follow up technical advice available from manufacturer 	S	L	<ul style="list-style-type: none"> - Safe work procedures to be implemented; operators instructed that SWPs are to be followed at all times; operator adequately trained - Appropriate advice to be sought before operating in new or unknown locations (Particular care must also be exercised in low visibility situations) - ALL responsibility of the management of the unit. 	Y	Management of the Unit		
3.15		- As Above	S	L	All operators must be instructed (SWP) not to operate during thunderstorms and keep away from unit if thunder/lightning clouds approach the work area.	Y	Management of the Unit		



A	B	C	D	E	F	G	H	X
Hazard No.	Hazard Description - (the situation or parts of plant which could cause injury or illness)	Is There a Risk ?			Proposed SUPPLEMENTARY risk control measure	Are the control measures practicable? Yes/No	For Action by whom	Confirmation that the necessary action has been completed
		Describe the risk control measures ALREADY implemented	Consequence	Likelihood				
3.16	Persons could be injured if anyone rides on the machine	These machines are NOT designed as ride-on equipment for passengers. - Manufacturer’s “Operation and Maintenance Manual” provided, - Documentation provided to purchaser to enable him/her to adequately train operating staff, - Follow up technical advice available from manufacturer	S	L	Operators instructed NOT to carry passengers. Safe work procedures to be implemented; operator instructed that SWPs are to be followed at all times; operator adequately trained – ALL responsibility of the management of the unit.	Y	Management of the Unit	
3.17.	Persons could be injured if controls are inadvertently moved due to being caught by operator’s loose clothing	- Manufacturer’s “Operation and Maintenance Manual” provided, - Documentation provided to purchaser to enable him/her to adequately train operating staff, - Follow up technical advice available from manufacturer	S	L	Instruct operator to wear clothing appropriate to his duties – see Operator Manuals and training information, refer SWP.	Y	Management of the Unit	
3.18	Persons could be injured while working on or being close to moving mechanical parts while wearing loose clothing	- As Above	S	L	Instruct operator to wear clothing appropriate to his duties – see Operator Manuals and training information, refer SWP.	Y	Management of the Unit	
3.19	Persons could be injured while working on or being near moving mechanical parts while having long hair.	- As Above	S	L	Instruct/supervise any person with long hair to wear a hair net or other appropriate restraining device	Y	Management of the Unit	



A	B	C		D	E	F	G	H	X
Hazard No.	Hazard Description - (the situation or parts of plant which could cause injury or illness)	Is There a Risk ?			Proposed SUPPLEMENTARY risk control measure	Are the control measures practicable? Yes/No	For Action by whom	Confirmation that the necessary action has been completed	
		Describe the risk control measures ALREADY implemented	Consequence	Likelihood					
3.20	Persons could be injured if unit rolls over, trapping or crushing them, particularly in areas around open excavations, embankments, dams, rivers and lakes.	<ul style="list-style-type: none"> - Manufacturer's "Operation and Maintenance Manual" provided, - Documentation provided to purchaser to enable him/her to adequately train operating staff, - Follow up technical advice available from manufacturer 	S	L	<ul style="list-style-type: none"> - Management to reconnoitre area of operation and make appropriate judgements; AND - Operator to ensure the machine is not driven or used in or on any area that may collapse or otherwise cause the machine to become unstable 	Y	Management of the Unit		
3.21	Persons may be injured due to modification of the structure or operating systems.	- As Above	S	L	Management of the machine is to ensure that no modifications are made without the approval of the designer or manufacturer.	Y	Management of the Unit		
3.22	Persons may be injured due to deterioration of components.	- As Above	S	L	Ensure that all critical components listed by the manufacturer are replaced with identical components at intervals that do not exceed the manufacturer's recommendations, AND Ensure this information is recorded in the unit's logbook.	Y	Management of the Unit		
3.23	Persons could be injured if the loader is used for a purpose for which it was not designed	<ul style="list-style-type: none"> - As Above; AND - Manuals are very clear about the purposes for which the unit is designed and its limitations in operation 	S	L	Safe work procedures to be implemented; operator instructed that SWP's are to be followed at all times; operator adequately trained - ALL responsibility of the management of the unit.	Y	Management of the Unit		
4.	ELECTRICAL								



A	B	C	D	E	F	G	H	X
Hazard No.	Hazard Description - (the situation or parts of plant which could cause injury or illness)	Is There a Risk ?			Proposed SUPPLEMENTARY risk control measure	Are the control measures practicable? Yes/No	For Action by whom	Confirmation that the necessary action has been completed
		Describe the risk control measures ALREADY implemented	Consequence	Likelihood				
4.1	Persons could be injured as a result of placing the bucket into contact with, or too close to live electrical conductors above or below the ground	<ul style="list-style-type: none"> - As Above; AND - Specific warning notice in Operators Manual; AND - SWP's implemented & managed; OR - Operate only in areas where there are NO live electrical conductors; OR - Ensure all electrical apparatus in area is isolated. 	F	L	<ul style="list-style-type: none"> - Verify that in any area where the mini-loader is to be used there are NO live electrical conductors; AND - Routinely inspect the area to ensure that situation remains safe from contact with, or too close proximity to live electrical conductors. 	Y Y	Management of the Unit	
4.2	Persons could suffer injury as a result of fault in battery charging system.	<ul style="list-style-type: none"> - As Above; AND - Electrical precautionary measures noted in manual 	M	L	<ul style="list-style-type: none"> - Ensure the batteries are only charged using an approved charging system connected to an ELCB protected supply; AND - Ensure the electrical system is routinely inspected by an appropriately qualified person. 	Y Y	Management of the Unit	
5.	STRUCTURAL							
5.1	Mini-Loader could collapse, or individual components could fail and/or cause the loader to roll over as a result of overloading the unit.	<ul style="list-style-type: none"> - Mini Loader is designed, built & tested in accordance with appropriate Standards; AND - Hydraulic system provided with relief (valving or other form of) protection to prevent gross overload when raising bucket or other attachments; AND - SWP's implemented & managed 	F/S	L	<ul style="list-style-type: none"> - Design and construction of the equipment engineering certified with respect to maximum loads that can be safely handled by the unit; AND - Load limits specified in manuals & by decals on the unit; AND - Operators to be adequately trained and supervised to minimise risk of unit being overloaded. 	Y Y Y	Management of the Unit	
6.	MECHANICAL & HYDRAULIC							



A	B	C	D	E	F	G	H	X
Hazard No.	Hazard Description - (the situation or parts of plant which could cause injury or illness)	Is There a Risk ?			Proposed SUPPLEMENTARY risk control measure	Are the control measures practicable? Yes/No	For Action by whom	Confirmation that the necessary action has been completed
		Describe the risk control measures ALREADY implemented	Consequence	Likelihood				
6.1	Persons could be injured as a result of mechanical failure due to inadequate maintenance or overload.	As Above	F/S	L	- As Above; AND - Operators & Maintenance Manuals provided at time of supply of unit; AND - Inspection & maintenance included in Manuals; AND - Management of unit advised to implement maintenance regime in accordance with Manuals, and with consideration for “local” operating conditions	Y Y Y Y	Management of the Unit	
6.2	Persons could be injured by the unit operating in poor or unsafe condition.	- As Above; AND - Operators & Maintenance Manuals specify inspection & maintenance schedules for critical items; AND - Operators & Maintenance Manuals recommend component replacement only with original spare parts. - Operators & Maintenance Manuals also provide information about unsafe working conditions	F/S	L	- As Above; AND - Management of the unit should develop & implement checklist and logbook system for operators & service staff; AND - Management of unit should maintain adequate inspection & maintenance schedule; AND - Management of the unit should instruct operators to report all faults.	Y Y Y Y	Management of the Unit	
7.	OVERTURNING and/or STABILITY ISSUES							



A	B	C	D	E	F	G	H	X
Hazard No.	Hazard Description - (the situation or parts of plant which could cause injury or illness)	Is There a Risk ?			Proposed SUPPLEMENTARY risk control measure	Are the control measures practicable? Yes/No	For Action by whom	Confirmation that the necessary action has been completed
		Describe the risk control measures ALREADY implemented	Consequence	Likelihood				
7.1	Persons could be injured as a result of unit losing stability & overturning.	<ul style="list-style-type: none"> - By engineering design, certification and testing in accordance with appropriate Standards, designer & manufacturer have established stability limits for units; AND - These limits are specified in operator & maintenance manuals; AND - ALL units are fitted with LEVEL INDICATOR ALARM to warn about possible unstable conditions. 	F/S	M	<ul style="list-style-type: none"> - Operators adequately trained; AND - Safe work procedures implemented; AND - operator instructed that SWP's are to be followed at all times. 	Y Y Y	Management of the Unit	
7.2	Persons could be injured as a result of unit losing stability & overturning as a result of exposure to excessive wind forces.	<ul style="list-style-type: none"> - By engineering design, certification and testing in accordance with appropriate Standards, designer & manufacturer have established stability limits for units; AND - Stability limits are set conservatively to provide adequate margins of stability; AND - ALL units are fitted with LEVEL INDICATOR ALARM to warn about possible unstable conditions. 	S/M	L	<ul style="list-style-type: none"> - Operators adequately trained; AND - Safe work procedures implemented; AND - operator instructed that SWP's are to be followed at all times. 	Y Y Y	Management of the Unit	



A	B	C		D	E	F	G	H	X
Hazard No.	Hazard Description - (the situation or parts of plant which could cause injury or illness)	Is There a Risk ?			Proposed SUPPLEMENTARY risk control measure	Are the control measures practicable? Yes/No	For Action by whom	Confirmation that the necessary action has been completed	
		Describe the risk control measures ALREADY implemented	Consequence	Likelihood					
7.3	Persons could be injured as a result of unit losing stability & overturning as a result of positioning outriggers/tyres on soft ground or over culverts or drains.	As Above	F/S	M	<ul style="list-style-type: none"> - Operators adequately trained; AND - Safe work procedures implemented; AND - operator instructed that SWP's are to be followed at all times. In particular, ensure that at all times the Mini-Loader does operate on surfaces capable of sustaining the applied loads; AND - Periodically inspect surface during extended operations to ensure that the condition is sound. 	Y Y Y Y	Management of the Unit		
7.4	Persons could be injured as a result of unit losing stability & overturning as a result of excessive slope	- Unit is rated for operation on surfaces that have less than 15° of slope only.	F/S	M	<ul style="list-style-type: none"> - Operators adequately trained; AND - Safe work procedures implemented; AND - operator instructed that SWP's are to be followed at all times. 	Y	Management of the Unit		
7.5	Person(s) may be injured due to overturning of unit as a result of axle failure in unfavourable circumstances.	Axles designed and manufactured to sustain allowable loading.	F/S	L	<ul style="list-style-type: none"> - Operators adequately trained; AND - Safe work procedures implemented; AND - operator instructed that SWP's are to be followed at all times; AND - Ensure the machine is not subjected to overloading or impact loading that may cause failure of an axle; AND - Ensure the axles are subject to periodic visual and NDT examination in accordance with the maintenance regime 	Y Y Y Y	Management of the Unit		



8. ACCESS ISSUES/ TRIPS AND FALLS								
8.1	Persons could injure themselves by slipping or falling whilst gaining access to platform.	Unit manufactured with platform which has non slip treads in close proximity to ground	M	L	- Maintain non-slip treads; AND - Ensure area is clear of slippery surfaces; AND - Establish safe access and exit procedures and familiarise/train/instruct operators accordingly.	Y Y Y	Management of the Unit	
9. UNCONTROLLED MOTION								
9.1	Person(s) may be injured due to uncontrolled motion	- Design of controls requires deliberate engagement (other than in event of component failure) - Emergency stop control provided as part of design/build	S/M	L	- Operators adequately trained; AND - Safe work procedures implemented; AND - operator instructed that SWP's are to be followed at all times; AND - Verify condition and operation of controls in accordance with manual.	Y Y	Management of the Unit	
9.2	Person may be injured as a result of hose failure	- Hoses & fittings chosen to safely meet pressure requirements; AND - Hoses & fittings sizes protect against rapid lowering in the event of hose rupture	S/M	L	- Operators advised in Manuals to immediately stop and turn unit off in the event that oil leaks detected	Y Y	Management of the Unit	
9.3	Persons may be injured if hydraulic fluid permitted to reach unsafe levels	- Operations & maintenance Manuals require pre-operational checking of fluid levels	S/M	L	- Operators adequately trained; AND - Safe work procedures implemented; AND - operator instructed that SWP's are to be followed at all times; AND - Verify pre-operational checks done in accordance with manual;			
10. BURNS								
10.1	Person(s) may be injured as a result of contact with battery acid	Conventional truck battery only source	M/L	M	Ensure that all battery maintenance is carried out by competent persons in accordance with established SWP's.	Y	Management of the Unit	
10.2	Person(s) may be injured as a result of contact with hot engine parts or exhaust system	By design & build, hot exhaust components are guarded by location or physical guards	M/L	L	During routine maintenance process, ensure that all hot engine parts and exhaust pipes remain guarded	Y	Management of the Unit	



11. SPECIFIC MAINTENANCE ISSUES								
11.1	Person(s) may suffer strains, sprains when performing certain maintenance work on the Mini-Loader.	Relatively lightweight and manageable Components. Notes in manual	M	L	- Establish appropriate work procedures for all anticipated maintenance issues arising; AND - Periodically reassess these issues	Y Y	Management of the Unit	
11.2	Poisoning due to high pressure injection of hydraulic oil.	- Hydraulic components in accordance with appropriate Standards - Warning notes in manual	M	L	- Operators advised in Manuals to immediately stop and turn unit off in the event that oil leaks detected - Establish reporting procedures and emergency treatment procedures.	Y	Management of the Unit	
11.3	Persons could be injured if the maintenance and service personnel do not understand the workings of the machine.	Manufacturer's "Operation and Maintenance Manual" provided. The unit is not unusual and no special maintenance provisions are required.	M	L	- Ensure that the maintenance and service personnel are competent and appropriately qualified; AND - That they read and thoroughly understand the machine's operation, instruction and service manual.	Y	Management of the Unit	
11.4	Persons could be injured by being exposed to pinch or shear points	- Warning notices in Operations & Maintenance Manuals; AND - Decals fixed in appropriate locations on unit	M	L	Instruct personnel in respect of proper maintenance procedures	Y	Management of the Unit	
11.5.	Persons may be injured as the result of poor maintenance and/or adjustment procedures.	Manufacturer's "Operation and Maintenance Manual" provided – service and/or repair intervals set out in Manuals.	F/S	L	- Supplement the manual with concise criteria in respect of hazard warnings as detailed herein and as identified during periodic safety assessments; AND - Ensure that the unit is tested by a competent person prior to being returned to normal service after repairs and/or adjustment of critical components or systems.	Y Y Y	Management of the Unit	
11.6	Persons could be injured due to presence of sharp edges.	Sharp edges removed as part of manufacturing quality controls	L	L	Routinely inspect unity for condition or presence of sharp edges	Y	Management of the Unit	



12. EMERGENCY PROCEDURES							
12.1	Injuries exacerbated as a result of insufficient procedures or equipment	Manufacturer's "Operation and Maintenance Manual" provided – service and/or repair intervals set out in Manuals.	H	L	Establish and audit routine emergency procedures; AND Management of unit to establish procedures relevant to local operating conditions; AND Provide first aid equipment on premises in a clearly marked cabinet; AND Rehearse emergency procedures; AND Periodically verify emergency equipment and supplies.	Y Y Y Y	Management of the Unit
13. OTHER							
13.1	Persons could be injured if a machine that is known to be faulty is operated.	Manufacturer's "Operation and Maintenance Manual" provided – service and/or repair intervals set out in Manuals.	H	H	A "Danger – Don't Use" tag should be attached if the machine is faulty; AND Isolate device; AND Execute appropriate repairs.	Y Y Y	Management of the Unit
13.2	Persons may be injured due to modification of the structure or operating systems.	Manufacturer's "Operation and Maintenance Manual" provided – service and/or repair intervals set out in Manuals. Comprehensive spare parts list provided in Manual.	H	M	Ensure that no modifications are made without the approval of the designer or where the designer is not available by a competent person.	Y	Management of the Unit