



Monitor Industries Pty Ltd | ABN: 76 159 267 679
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Document ID: 270917.D01

Revision: A

Date: 27/09/2017


RISK ASSESSMENT DRAFT

Monitor Industries Pty Ltd

Winlet 1000 WINDOW ROBOT (SELF PROPELLED)

MANUFACTURER	GMV Manufacturing A/S
MODEL	1000
SERIAL NUMBER	(-----)
DATE OF MANUFACTURE	2017
PLANT DETAILS	1000 WINDOW ROBOT
CLIENT	Monitor Industries
INSPECTOR	(For Monitor Industries)
INSPECTION DATE	14/09/2017
INSPECTION LOCATION	Tamworth NSW 2340 Australia
DOCUMENT TITLE	RISK ASSESSMENT
DOCUMENT ID	270917.D01
DOCUMENT REVISION	A
DOCUMENT DATE	27/09/2017

DESCRIPTION	REVISION	DATE	APPROVER
Original Issue	A	27/09/2017	TBC

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	Monitor Industries Pty Ltd Winlet 1000 WINDOW ROBOT (SELF PROPELLED)
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This Risk assessment has been prepared exclusively for Monitor Industries Pty Ltd as part of design verification process carried out by Monitor Industries Pty Ltd. Explanation of table headers is given at the end of this document, the risk priority chart is also included which outlines determination of risk score: **Low** (1 – 5), **Moderate** (6 – 9), **High** (10 – 17), **Very High** (18 – 25). Hazards were identified by observing the plant during normal operation. The plant Owner/Operator is responsible for ensuring all recommended control measures outlined in this risk assessment are implemented, operators are trained in the safe use of the plant including all training aspects (but not limited to) mentioned below, and that operators adopt all control measures (but not limited to) outlined below.

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A	OPERATION					
A.1	Persons injured due to not following proper operating procedures	21	Operating instructions explained in operator's manual.	Train operators on safe use of the plant. Operator training should include at least the following: <ul style="list-style-type: none"> • pre-operation inspections; • Safe operation of plant; • Regular maintenance tasks; • Understanding of plant operation; • Capabilities and limitations; Emergency procedures. Do not operate the plant unless proper training has been received.	OWNER	
					OP	

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A.2	Operator or by-stander could be injured due to the operator not being 'fit for work' because of illness, fatigue, or being under the influence of drugs and alcohol.	21		Ensure operators are instructed not to operate the plant when they are not 'fit for work'. Do not operate the plant when ill, excessively fatigued, or under the influence of drugs and alcohol.	OWNER OP	
A.3	Persons could be injured due to misuse when the plant is left unattended or under storage.	18		Always remove the key from the controls whenever the plant is unattended.	OP	
A.4	Operator or by-stander could have toes crushed by moving plant or load during manoeuvring operations.	18	Safety instructions in Operator's Manual recommend wearing steel capped footwear when working near the plant.	Ensure operators wear steel capped footwear.	OWNER	

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A.5	Person could be run over by rolling plant if left parked on an inclined surface when not in service.	19	Plant fitted with brakes which engage automatically when drive/speed regulator is disengaged. Instructions against this practice included in Operator's Manual.	Do not park plant on an incline. If there is no alternative to parking the plant on an incline, place wheel chocks on the wheels to prevent the plant from rolling down. Do not operate the plant when ill, excessively fatigued, or under the influence of drugs and alcohol.	OP OP	
A.6	Persons could be injured if the loaded plant was left unattended.	18		Train operator not to leave a loaded plant unattended. The load must be unloaded before the plant can be left alone.	OWNER	

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A.8	Persons could be crushed by overturning plant due to lifting loads on out of level ground	22	Rated capacity chart in Operator's Manual indicates lifting operation is only allowed on level ground.	Add decal near load chart on plant indicating that lifting is only permitted on level ground. Train operators about plant limitations when out of level. Do not carry out lifting operations when the plant is not supported on level ground.	OWNER OWNER OP	

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A.9	Persons could be crushed by overturning plant if operated under windy conditions	22		Operator training to include effects on plant stability due to wind over large surface areas such as glass panels. Constantly monitor wind conditions when operating in wind-sensitive areas such as multi-story buildings or outdoors.	OWNER OP	
A.10	Persons could be injured due to the plant being used to carry out tasks other than its intended purpose.	14		Train operators about the dangers of using the plant in unintended ways, such as using it as a ladder, work bench, or personnel lift. Do not use the plant as a ladder, work bench, personnel lift, or any other way for which is not designed for.	OWNER OP	

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A.11	Persons could be injured due to hazards associated with the job site	22		Ensure hazard and risk analysis is performed before operating the plant on site. Perform hazard and risk analysis before operating the plant on site.	OWNER OP	
A.12	Persons could be injured due to following a poor system of work	21		Implement appropriate system of work based on manufacturer's recommendation (e.g. operating instructions shown in operator's manual) and best industry work practices for handling and lifting of loads.	OWNER	
A.13	Person could be injured by the load dislodging from the suction caps during load rotation due to the load not being centred.	21	Operator's Manual recommends the load to be lifted from its centre of gravity.	Train operators on safe work practices to lift and handle loads with the plant to minimise the risk of loads dislodging from the suction caps by centring the load to be lifted. Training should include ways to determine load centre of gravity.	OWNER	

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A.14	People could be injured due to malfunction of electronic components	15		Conduct pre-operational checks. Do not stand under a lifted load.	OP	
A.15	Persons could be crushed by the plant and payload due to tipping over when driving with the load too high.	19	Safety instructions in Operator's Manual instruct to drive with the load lowered.	Train operators to only drive the plant with the load lowered. Only drive the plant with the load lowered as close as practicably possible to the ground.	OWNER OP	
A.16	Persons could be injured due to the load slipping off the suction cups if operating outdoors in wet weather or slippery conditions.	24	Safety instructions in Operator's Manual instruct to never use the plant outdoors in wet weather.	Train operators not to operate the plant under wet weather conditions, or to pick up wet or slippery panels. Do not pick up wet or slippery loads, or in wet weather conditions.	OWNER OP	

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A.17	Persons could be injured due to operator using the controls in an abrupt manner.	13		Avoid abrupt and jerky movements when operating the plant	OP	
A.18	Persons could be injured due to plant tipping over because of failure of a tyre.	15		Include tyre check in pre-operation and inspection procedure.	OWNER	
A.19	By-stander could be injured by moving plant.	14		Train operator to ensure other site personnel are away from the plant before moving it.	OWNER	
A.20	Persons could be injured due to boom or load being struck by another plant	18		Ensure no other equipment is being operated near the plant, including overhead cranes, forklifts and aerial work platforms.	OP	
A.21	Operators' hands could be injured while handling product (glass) without hand protection.	17		Train operators on the risks of handling glass. Provide appropriate type of gloves to operators. Wear gloves when handling product.	OWNER	

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A.22	Operator could be struck on the head by lowering boom and load while using the hand-held ground controls	18		Train operator to be mindful of position of the plant and him/herself when operating the hand-held controls. Enforce the use hard hats while operating or working in proximity of the plant.	OWNER	
A.23	Operator and by-stander could be crushed by overturning plant due to inadequate ground conditions.	22		Assess ground conditions on job site prior to operating the plant; ensure ground is level and compact enough to support the weight of the plant plus the load.	OP	
A.24	Operator and by-stander could be crushed by overturning plant when working near a ditch, trench, or pit wall.	22		Always maintain a safe distance from ditches, trenches or pit walls during lifting operations.	OP	
A.25	Plant could overturn and crush the operator due to excessive wind loads.	19		Instruct operator to observe wind conditions when working in wind prone areas, and stop work as necessary.	OWNER	

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A.26	Persons could be injured by rolling down plant due to travelling on an excessively steep incline.	19		Train operators not to operate the plant over excessively steep inclines.	OWNER	

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B	DESIGN					
B.1	Persons could be injured due to structural failure of plant components	19	CE – EU declaration of conformity is supplied by the manufacturer stating the plant's conformance with Machinery Directive and harmonised standard EN 131552003 Lifting devices.	Carry out regular structural proof load testing on plant	OWNER	
B.2	Operator could be injured due to platform overturning because of excessive chassis inclination while the plant is driven with load in the transport position.	22		Train operators about the risks associated with driving plant over excessive ground slopes.	OP	
				Carry out job site risk assessment to determine suitability of the site before commencing any work.	OP	

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B.3	Operator could be injured due to failure of controls	19	Emergency Stop located on steer handle bar cuts out all plant functions when depressed.	Regularly check E-STOP switch works properly, is not damaged and is readily accessible during operation of the plant.	OP	
B.4	Operator or by-stander could be injured due to control system failure while operating hand-held controls because there is no ESTOP push button on the handheld control panel to shut down the plant in an emergency.	19		Carry out function test during preoperation and inspection check.	OP	
				Always check there are no persons in close proximity with the plant during operation.	OP	

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B.5	Operator and by-stander could be crushed by overturning plant while lifting a load on an inclined surface.	24	Plant is fitted with an out-of-level visual and audible alarm which prevents further movement of the plant when the chassis is out of level. Operator's manual indicates plant can only operate on 100% level surface	Train operators to lift load with the plant only on level ground. Do not lift loads if the plant is not on level ground.	OWNER OP	
B.6	Persons could be injured due to failure of hydraulic hoses.	15		Install load-holding valves on lift and telescopic cylinders. These valves must be close to the cylinder and connected to it using rigid pipes and welded flange connections. Regularly check operation of counter balance valves as part of the preventative maintenance schedule.	OWNER OWNER	

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B.7	Operator and/or by-stander could be crushed by plant whilst being driven.	15	Emergency stop button is fitted to control handle bar which stops all plant movements when depressed. Micro-switch fitted to handle bar stops all functions if handle bar is released and returns to the upright position, or if it is pull right down.	Train operators to drive plant at speeds suitable to job site conditions, always be aware of other persons in the vicinity of the plant, and always maintain visual contact with the direction of travel.	OWNER	

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B.8	Operator and/or by-stander could be crushed by plant tipping over with excessive side hung load because the overload system is not designed to detect an overload when the load is placed on the side.	22	Maximum side load capacity shown on rated capacity chart.	Do not exceed rated capacity of the plant.	OP	
				Deploy plant outriggers when handling side loads to increase plant stability.	OP	
				Ensure operators do not rely on the overload system when handling side loads because the system may not be able to accurately estimate a side load.	OWNER	

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B.9	Persons could be injured by falling glass panel due to failure of vacuum system.	21	Plant fitted with 2 separate vacuum circuits which allows for safe lowering of the load if one circuit fails. Vacuum monitoring system alerts the operator when vacuum level drops below 60%	Train operators on safe work procedure to lower the load in the event of vacuum failure. Always observe vacuum gauges and alarms during lifting operations.	OWNER OP	

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B.10	Persons could be injured due to failure of powering system (e.g. flat battery) causing the load to drop.	22	Instructions provided in the Operator's Manual to disengage the wheel brakes so it can be pushed into a safe area.	Prepare emergency procedures for power failure, taking into consideration the possibility of the load being disengaged from the suction heads. Train operators on the procedure. Train operators to regularly check battery charge levels, stop working and recharging the batteries before they become flat.	OWNER	
B.11	Persons could be injured by plant due to failure of the hydraulic system because of excessive hydraulic pressure	10	Plant hydraulic system is fitted with pressure-relief valve	Check system pressure settings during preventative maintenance.	OWNER	

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B.12	Persons could be injured due to the plant tipping over because of incorrect counterweight set up.	24		Add inspection of counterweights to Pre-operation check list	OWNER	
				Ensure all counterweights are on the plant before using the plant.	OP	

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C	ELECTRICAL					
C.1	Person could get electrocuted due to plant coming in contact with power lines.	24	CE – EU declaration of conformity is supplied by the manufacturer stating the plant's conformance with Machinery Directive and harmonised standard EN 131552003 Lifting devices.	Train operators on safe use of the plant; particularly look out for suspended power lines inside buildings. Power from overhead cables near the work area should be switched off and main power isolators tagged. Maintain a minimum distance of 3 metres from overhead power lines all the way around the plant.	OWNER	
C.2	Operator could be electrocuted while plant batteries are being charged due to faulty AC wiring	22		Ensure a residual current device (RCD) is used in line with electric extension cord to charge the batteries. Ensure plant is regularly tested and tagged as per requirements of AS 3000.	OP/OWNER	

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D	MAINTENANCE					
D.1	Persons could be injured due to plant maintenance not performed periodically	18	Operator's Manual includes basic servicing instructions.	Prepare maintenance schedule indicating frequency of maintenance for plant components such as, tyre pressure, oil changes, lubrication of extension arm, etc. Keep a log of all maintenance carried out on the plant, including repairs.	OWNER	
D.2	Maintenance persons could be injured due to not following correct maintenance procedures	14	Maintenance procedures included in operator's manual	Allowed only qualified service personnel to perform maintenance tasks on plant	OWNER	
D.3	Maintenance persons could be injured if the plant was started during maintenance.	15		Instruct maintenance personnel to remove the key from the plant during maintenance. Implement a 'tag out' procedure to prevent other people from starting a plant that is being maintained.	OWNER	
D.4	Persons could be injured due to decals becoming unreadable	15		Ensure unreadable, damaged or missing decals are replaced as necessary.	OWNER / OP	

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D.5	Persons could be injured by overturning plant due to failure of safety switches or overload system.	22		Test overload system at least annually (add it to maintenance schedule).	OWNER	
D.6	Persons could be injured due to structural failure because of undetected structural damage (bent, corroded or cracked structural components).	15		Carry out regular maintenance tasks to assist in detecting plant damage.	OP	
				Carry out plant structural overload test at least once per year.	OWNER	
D.7	Persons could be injured due to malfunction of plant controls	14	Operator is instructed to carry out Pre-operation testing of controls in the Operator's Manual.	Train operator on pre-operation testing and inspection of plant controls.	OWNER	
				Carry out pre-operation testing before operating the plant.	OP	

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D.8	Persons could be injured due to operation of incorrect controls.	18		Train operators to double check what function is enabled on the control panel to avoid incorrect operation of function.	OWNER	
D.9	Persons could be injured due to plant tipping over because of incorrect type or size of tyre being fitted.	10		Always double check function selection in control panel before operating a function Ensure replacement tyres match the exact type originally fitted to the plant.	OP OWNER	
D.10	Persons could be injured due to failure of steering mechanism	6		Include steering mechanism in preventative maintenance schedule.	OWNER	
D.11	Persons could be injured by an explosion due to batteries being charged near ignition sources such as grinding, welding and smoking	22		Provide a designated charging station away from ignition sources. Only charge batteries in designated charging station(s).	OWNER/OP	

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Monitor Industries Pty Ltd

Winlet 1000 WINDOW ROBOT (SELF PROPELLED)

ID.	Description of Hazard	Risk Score	Control Measure ALREADY Implemented	Further Recommended Control Measure(s)	Action By	Date control measure implemented
D.12	Persons could be injured by an explosion due to batteries being charged immediately after use.6	15	Operator's Manual states that batteries must not be charged immediately after use to allow the batteries time to cool down.	Ensure the person responsible for charging the batteries knows the batteries should not be charged immediately after use.	OWNER	
D.13	Persons could be injured due incorrect operation of plant controls because of decals becoming unreadable.	13	Plant controls have been identified and marked on the plant and on the Operator's Manual.	Do not charge the batteries immediately after use. Ensure control decals are regularly checked and replaced if they become unreadable.	OP OWNER / OP	
D.14	Persons could be injured due to tampering of plant components during plant operation	18		Ensure tampering of plant components is not carried out during plant operation. The plant must be taken off service before making any adjustment.	OWNER / OP	

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ID.	Description of Hazard	Risk Score	Control Measure ALREADY Implemented	Further Recommended Control Measure(s)	Action By	Date control measure implemented
D.15	Maintenance personnel could be crushed by boom during maintenance of plant components such as hydraulic system, electrical system, or removal of structural components.	18		Ensure boom is properly supported before carrying out any maintenance tasks.	OWNER / OP	
D.16	Maintenance personnel could be injured while removing the batteries.	9		Train maintenance personnel on lifting techniques, encourage 2 person lifting for heavy or awkward to reach parts. Always use appropriate lifting techniques, perform 2 person lifting for heavy or awkward to reach parts.	OWNER OP	
D.17	Persons could be injured due to mistaking the plant with another one of the same make and model, which may not be in good working order because the machine identification plate is unreadable.	13		Replace machine identification plate / decal.	OWNER	

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E	TRANSPORT / LIFTING / STORAGE					
E.1	Persons could be crushed while loading / unloading plant for transportation	22	Lifting procedure included in Operator's Manual.	Add decals to lifting and tie down points on the plant for correct identification. Train operators on safe work procedure to lift the plant. Plant counterweights should be removed from the plant for transportation and lifting purposes.	OWNER	
E.2	Persons could be injured by plant falling during lifting or transportation operations because it has been secured/lifted from unsuitable points in the chassis	14	Plant is fitted with lifting / tie down points.	Ensure operators are aware of the correct way to handle / transport the plant	OWNER	
E.3	Persons could be injured by plant if not adequately restrained during transportation	22		Ensure plant is properly secured using the tie-down point provided. Train persons responsible for loading the plant for transportation on loading and restraining safe work practices.	OWNER	

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E.4	Persons could be crushed due do failure of lifting slings, chains, etc.	19		Ensure lifting / tie down gear is in good condition. Only use chains and slings for their intended purpose. E.g. Do not use ratchet straps in lifting applications	OP	
E.5	Persons could be crushed if plant falls during lifting due to incorrect set up of slings	19	A 3-point sling can be provided by manufacture for lifting.	Prepare a lifting procedure indicating the type, length and capacity of slings, and the arrangement of slings to perform the lifting operation safely. This procedure should be tested before a lift operation is carried out on site.	OWNER	

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ID.	Description of Hazard	Risk Score	Control Measure ALREADY Implemented	Further Recommended Control Measure(s)	Action By	Date measure implemented
F	OTHER					
F.1	Persons could be injured by attempting to operate a faulty or out of order plant.	10		Implement a 'tag out' procedure for maintenance / faulty plants.	OWNER	
F.2	Injured operator could suffer complications if immediate emergency treatment could not be administered due to the operator working solo.	15		Obey 'tag out' procedure for maintenance / faulty plants. Ensure operators do not work alone.	OP OWNER	
				Do not work alone.	OP	

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ID.	Description of Hazard	Risk Score	Control Measure ALREADY Implemented	Further Recommended Control Measure(s)	Action By	Date control measure implemented
F.3	Persons could be injured while operating the plant in an area with insufficient light.			Instruct operator to ensure there is sufficient lighting in the work area.	OWNER	
F.4	Persons could be injured due to the plant design not satisfying National Standards and statutory requirements	22	Statement of compliance given in Operator's Manual.	Install manufacturer's serial plate on the plant, in a visible place.	OWNER	
F.5	Persons could be injured due to failure of the plant because of a design fault.	19	Statement of compliance given in Operator's Manual.			
F.6	Persons could be injured due to modifications made to the plant after completion of this risk assessment.	22		Ensure any modifications made are inspected, assessed and approved by a competent person.	OWNER	

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RISK PRIORITY CHART

	LIKELIHOOD	CONSEQUENCE				
		A	B	C	D	E
	Insignificant (No treatment required)	Minor (first aid treatment only)	Moderate (Medical treatment and lost time)	Major (Serious injury, specialist treatment, hospitalisation)	Catastrophic (Death, permanent disability, multiple injuries)	
1	Rare (Will happen in exceptional cases)	1	3	6	10	15
2	Unlikely (Not like to occur in foreseeable future)	2	5	9	14	19
3	Possible (May occur within foreseeable future)	4	8	13	18	22
4	Likely (Likely to occur within foreseeable future)	7	12	17	21	24
5	Almost certain (Expected in most cases)	11	16	20	23	25

RISK SCORE	ACTION
18 - 25: Very high	ACT NOW
10 - 17: High	Highest management decision required urgently
6 - 9: Moderate	Do something to address the risk
1 - 5: Low	OK for now. Record and review any changes

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GENERAL NOTES

1. Table legend is as follows:
 - a) **ID.** Hazard identification number;
 - b) **Description of Hazard:** Brief description of identified hazard;
 - c) **Risk Score:** Used to prioritise risks in order of importance from 1 to 25 (4 being the highest risk score and most significant).
 - **18 - 25: Very High – ACT NOW.** Urgent, do something about the risk immediately.
 - **10 - 17: High –** Highest management decision is required urgently.
 - **6 - 9: Moderate –** Follow management instructions.
 - **1 - 5: Low –** OK for now. Record and review if any equipment/ people/ materials/ work processes or procedures change.
 - d) **Control measure ALREADY implemented:** Any control measure already in place to minimise the hazard
 - e) **Further recommended control measure:** Recommendation of control measures to be taken. All items on each hazard must be addressed in order to minimise / control the risk
 - f) **Action by: Person / entity responsible for executing the control measure**
 - OP – Refers to plant operator
 - OWNER – Refers to plant owner, entity or person responsible for the plant's condition
 - g) **Control Measure Implemented:** Short description of control measure implemented, or comment from person / entity responsible. Include the date the control measure was implemented.
2. The list of hazards identified in this report is by no means exhaustive. Although Monitor Industries Pty Ltd has made every attempt to identify reasonable foreseeable hazards, no guarantee is given as to the completeness of this risk assessment.
3. This hazard identification and risk assessment report has been prepared based on the information available at the time of publication. Persons legally responsible for the use of the plant are responsible for regularly reviewing and identifying new and existing hazards, and to apply appropriate control

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measures to eliminate the hazard or manage the risk. Hazard identification and risk assessment are only the first two steps of risk management; it is the responsibility of the person legally responsible for the use of the plant to complete all steps of risk management.

4. Risk assessment has been performed in accordance with guidelines published by "Worksafe Australia" (Managing the Risks of Plant in the Workplace Code of Practice), and "AS 4024.1301-2006: Risk Management – Principles of risk assessment"
5. Other hazards may arise due to factors such as plant deterioration due to poor maintenance, and the operator being unfit to work (due to illness, intoxication or other circumstances which will affect the operator's performance or concentration). It is the responsibility of the person legally responsible for the use of the plant to ensure it is adequately maintained, and operators are fit to work.

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