Job Safety Analysis (JSA) Number 2: To be used for Risk Assessment Review

JOB SAFETY ANALYSIS			JSA No. 002	NEW		DATE:
			PAGE 1 OF 2	REVISED		DATE:
JOB (TASK) TITLE: Operate a Forklift				REVISION NUMBER:		
	TITLE OF PERSON WHO PERFORMS JOB: Licenced Operator	SUPERVISOR:		ANALYSED BY:		
COMPANY: **BIG MINE PTY LTD**	DEPARTMENT: **SAFETY**	PLANT/LOCATION: On-site		REVIEWED BY:		
	REQUIRED OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT: Ear Protection, Eye Protection			APPROVED BY:		

SEQUENCE OF BASIC JOB STEPS	POTENTIAL HAZARDS	RISK ASSESSMENT *CONSQ PROB SCORE*			RECOMMENDED ACTION OR PROCEDURE	RESIDUAL RISK PROB	CONSQ	SCORE
1.Machine Inspection	-Mechanical failure	2	3	8	-Visual inspection; fluid and oil levels; Chains for wear, kinks, corrosion; Air cleaner, Mast hoses and cables, cleanliness, anti slip surfaces, tyre pressure -Periodic maintenance -Maintain proper tyre pressure	2	3	8
2.*Entering/exiting cab*	-Personal injury - slip or fall	4	4	21	-Do not step on tyre -Maintain 3 points of contact with steps and handrail -Wear appropriate footwear and ensure footing is clean and dry -Face unit while entering / exiting	4	2	14
3.Start the engine	-Operator error	3	4	17	-Trained and qualified personnel only -Operate per Manufacturer Manual	2	4	17
	-Overturning unit	2	2	5	-Ensure unit on level, sold ground -Ensure unit not in gear Do not overload machine Ensure tire pressure is satisfactory -Ensure parking brake is set			
	-Mechanical Failure	2	2	5	-Allow engine to warm up Verify proper pressures and levels and voltages			
	-Personal Injury	3	3	13	-Make sure personnel are clear of machine -Verify horn systems work -Do not approach unit unless have eye contact with operator			

4.General Machine Operation	-Battery hazards (acid, electricity, flames)	2	2	5	-Keep metal tools away from terminals -Wear appropriate PPE	2	2	5
	-Operator Error – various hazards	3	3	13	Operate machine from operators seat only -Trained and qualified personnel only -Operate per manufacturer manual -Operate per load and safety labels/graphics -Do not rush, ensure aware of safety features -Ensure aware of equipment limitations -Situational awareness about weather conditions, terrain and soil (foundation and level) -Maintain line of sight with ground personnel			
	-Overturning Hazard	4	4	21	-Always wear seatbelt Maintain loads as low as possible Maintain stability via slow speeds and turning	4	3	18
	-Personnel caught in moving parts	2	3	8	-Avoid wearing loose fitting clothing Maintain safe clearances			
	-Equipment failure				-Maintain awareness of fluids, pressures and temperatures			
5.Maneuvering and Transporting	-Collision and Damage with Load	2	3	8	-Approach load slowly -Ensure visibility is satisfactory -Ensure forks are level -Use front wheels as pivot points to align forks			
	-Overturning Unit, uneven surfaces, mechanical failure	4	4	21	-Observe load limits in cab labels (and in manufacturer's manual) -Maintain unit level -Maintain safe speeds and turning -Operate on inclines with load uphill - travel up inclines in forward and down in reverse			
	-Limited visibility Traffic hazards	3	3	13	-Use a ground guide -Use horns -Operate smoothly, slow down for turns and when operating on uneven surfaces -Always look in direction of travel, keep a clear view, keep load as low as possible -Slow down, sound horn at cross aisles and during high traffic or limited visibility			
	-Unsecure or unstable load	2	2	5	-Ensure load within capacity of unit -Adjust forks so weight is evenly distributed -While loaded, maintain mast tilted backward Ensure load properly secured			
	-Load Shifts or Breaks Free	2	3	8	-Stop the machine, lower the load until centered and held properly -Rearrange load before attempting to move			

	-Personal Injury, Collision	3	3	13	-Operating personnel maintain line of sight -Hand signals known and used Area maintained safe by on ground personnel -Maintain safe personnel clearances -Use appropriate headgear -Operate smoothly, slow down for turns and when operating on uneven surfaces -Always look in direction of travel, keep a clear view, keep load as low as possible, Slow down, Sound horn at cross aisles and during high traffic or limited visibility			
6.Engine Shutdown and Unit Parking	-Overturning on subsequent startup, Personal Hazard, Equipment / Traffic Hazard	3	3	13	-Move machine to safe location, apply parking brake -Transmission and hydraulic controls in neutral -Lower the carriage	2	5	16

SUPPORT DOCUMENTATION

Risk Matrix / Generic Hazard List / Consequence & Likelihood Levels

Risk Matrix - Event Risk Rating / Priority					
Likelihood	Consequence				
	1 Minor	2 Low	3 Medium	4 High	5 Major
5 Almost Certain	Medium (11)	Significant (16)	Significant (20)	High (23)	High (25)
4 Likely	Medium (7)	Medium (12)	Significant (17)	High (21)	High (24)
3 Possible	Low (4)	Medium (8)	Significant (13)	Significant (18)	High (22)
2 Unlikely	Low (2)	Low (5)	Medium (9)	Significant (14)	Significant (19)
1 Rare	Low (1)	Low (3)	Medium (6)	Medium (10)	Significant (15)

A. GENERIC ENERGY HAZARD LIST

Generic Energy Hazard	Definition
Biological	Potential for positive or negative impacts resulting from the interaction of activities with biological agents. This could be harm by exposure to biological hazards, flora and fauna including insect stings, bites, bacteria and other disease agents, viruses and natural poisons or environmental harm to biodiversity.
Chemical	Potential for harm by chemicals include acids, alkalis, organic substance (e.g. gases, fuels, lubes, degreasers, solvents, paints) ozone-depleting substances etc.
Climate / Natural Events	Potential for harm by exposure to extreme natural, environmental or climate sources and events (including lightning, high winds flooding).
Dust / Inhalable Particulates	Potential for harm by exposure to fine dry particles of matter in the air. Dusts, mists, vapours and aerosols (Coal dust, silica dust, environmental nuisance/community complaints).
Electrical	Potential for harm to people, equipment/assets or the environment by exposure to electrical sources.
Ergonomics	Potential for exposure to physical actions or forces, including poor design, thus presenting the potential for harm associated with exertion, excessive, unnatural or repetitive movement, poor posture or other undesired physical stress on the human body.
Explosives	Potential for harm by exposure to explosive material (e.g. unexploded detonators, tie-down lines, etc.).
External Threats	Potential for harm resulting from an external event outside of the operations direct control (e.g. legislation, government actions, community lobby groups, etc.).
Fire	Potential for harm by exposure to a burning mass of material (e.g. building fires, spontaneous combustion).
Gravitational (Objects)	Potential for harm by exposure to falling objects, unexpected movement (ground, slope, structure) due to uncontrolled gravitational forces.

Gravitational (People)	Potential for harm to people caused by their being subject to falling, unexpected movement or in any other way resulting from their being exposed to uncontrolled gravitational forces (including slips, trips, and falls).
Land	Potential harm to the naturally occurring environment due to the use or management of land resulting from pollution, clearance or any other degradation.
Lighting	Potential for harm resulting from excessive light or inadequate lighting in the workplace.
Mechanical (Fixed)	Potential for harm by exposure to interaction with sources of fixed mechanical energy (including those powered by electrical, hydraulic, pneumatic, combustion, etc.).
Mechanical (Mobile)	Potential for harm by exposure to interaction with sources of mobile (self-propelled) mechanical energy (including those powered by electrical, hydraulic, pneumatic, combustion, etc.).
Magnetic	Potential for harm to people, equipment/assets or the environment by exposure to magnetic sources (including handling metal objects in strong magnetic fields).
Noise	Potential for harm by exposure to sudden or prolonged exposure to excessive noise or community complaints.
Personal / Behaviour	Potential for harm associated with intentional undesired behavioural actions, stresses or stressors.
Pressure / Explosions	Potential for harm by exposure to sudden release of pressure from a specific source (including pressure waves from explosions, pressurised systems, cylinders, springs, chains, flying bits, or community complaints associated with air blast overpressure etc.).
Psychological	Potential for harm associated with stressors from situations, conditions or events that could create negative emotional, cognitive or behavioural outcomes.
Radiation	Potential for harm by exposure to radiation waves, whether natural or manufactured sources (characterised as either ionising or non-ionising sources).
Social / Cultural	Potential for positive or negative impacts resulting from the interaction of business activities with social or cultural expectations (includes social licences to operate).
Thermal	Potential for harm by exposure to or variations in temperature (hot or cold) but excludes anything that is on fire which has a separate category.
Vibration	Potential for harm resulting from prolonged exposures to excessive vibration or blast vibration.
Waste	Potential for harm caused by the inappropriate use of resources, inadequate management or disposal of waste material (including pollution and greenhouse gases).
Water	Potential for harm caused by the inappropriate use of water resources or inappropriate management or disposal of water.
Other	Potential for harm by exposure to other hazards/aspects, e.g. friction, bio-chemical.

A. LIKELIHOOD LEVELS

Likelihood	Description Considering the present and magnitude of the hazard and the exposure to that hazard() Number of people and the frequency of the tasks exposing those pole and also the status of existing controls
5 (Almost Certain)	The unwanted event is almost certain to happen within the LOB (Life Of Business). In the case of repetitive/ frequent task, the unwanted event has or will occur in order of one or more time per year. In terms of major events, as also in the case of long term health, environmental or social impacts, it may happen only once in the LOB.
4 (Likely)	There is a high probability that the unwanted event is almost certain to happen within the LOB. In the case of repetitive/ frequent task, the unwanted event has occurred or is likely to occur in order of less than once per year. In terms of major events, as also in the case of long term health, environmental or social impacts, it may happen once in the LOB.
3 (Possible)	It is possible that the unwanted event can occur within the LOB. In the case of repetitive/ frequent task, the unwanted event has occurred or is likely to occur in order of 5-10 years. In terms of major events, as also in the case of long term health, environmental or social impacts, it may possibly happen once in the LOB.
2 (Unlikely)	There is a low probability that the unwanted event to occur within the LOB. In the case of repetitive/ frequent task, the unwanted event has occurred sometime or is likely to occur not more than 10-20 years. In terms of major events, as also in the case of long term health, environmental or social impacts, there is a low probability for the event to happen in the LOB.
1 (Rare)	There is a very low probability that the unwanted event to occur within the LOB. In the case of repetitive/ frequent tasks, there are no records of the event occurring, or it is highly unlikely that it will occur within the next 20 years. In terms of major events, as also in the case of long term health, environmental or social impacts, there is a very low probability for the event ever to happen.

B. CONSEQUENCE LEVELS

Consequence Level - Consider the maximum reasonable potential consequence of the event					
Impact Type (Additional 'Impact Types' may exist for an event; identify & rate accordingly)	**1 Minor**	**2 Low**	**3 Medium**	**4 High**	**5 Major**
(S) Harm to People - Safety	First aid.	Medical treatment.	Lost time.	Permanent disability or single fatality.	Numerous permanent disabilities or multiple fatalities.
(H) Harm to People – Occupational Health	Exposure to health hazard resulting in temporary discomfort.	Exposure to health hazard resulting in temporary alterations/n limitations (no time lost).	Exposure to health hazards/agents (over the OEL) resulting in a reversible impact on health (with time lost).	Exposure to health hazards/agents (significantly over the OEL) resulting in an irreversible impact on health with loss of quality of life or single fatality.	Exposure to health hazards/agents (significantly over the OEL) resulting in irreversible impact on health with loss of quality of life of a numerous group/population or multiple fatalities.

(E) Environmental Impact	Lasting days or less; limited to small area (metres) receptor of low significance/sensitivity (industrial area).	Lasting weeks; reduced area (hundred of metres); no environmentally sensitive species/habitat.	Lasting months; impact on extended area (kilometres) area with some environmental sensitivity (scarce/valuable environment).	Lasting years; impact on sub-basin; environmentally sensitive environment/receptor (endangered species/habitats).	Permanent impact affects a whole basin or region; highly sensitive environment (endangered species, wetlands, protected habitats).
(C) Social / Community Impact	Minor disturbance of culture/social structures.	Some impacts on local populations, mostly repairable. Single stakeholder complaint in reporting period.	Ongoing social issues. Isolated complaints from community members/stakeholders.	Significant social impacts. Organised community protests threatening continuity of operations.	Major widespread social impacts. Community reactions affecting business continuity. "Licence to operate" under jeopardy.
(L&R) Legal & Regulatory	Technical non-compliance; no warning received; no regulatory reporting required.	Breach of regulatory requirements; report/involvement of authority. Attracts administrative fine.	Minor breach of law; report/investigation by authority. Attracts compensation/ penalties/ enforcement action.	Breach of law; may attract criminal prosecution of Operating Co. and/or of Directors/Managers and penalties/ enforcement action. Individual licence temporarily revoked.	Significant of the law; may attract Individual or class action lawsuits, criminal prosecution of Co. Directors/Managers. Suits against parent Co.; permit to operate substantially modified or withdrawn.
(M) Material Losses/ Damage/ Business Interruption	< 0.01 % of Annual Revenue/ Total Assets.	0.01 – 0.1 % of Annual Revenue/ Total Assets.	0.1 – 1.0 % of Annual Revenue/ Total Assets.	1 - 5 % of Annual Revenue/ Total Assets.	> 5 % of Annual Revenue/ Total Assets.
(R) Impact on Reputation	Minor impact, awareness/ concern from specific individuals.	Limited impact; concern/ complaints from certain groups/ organisation (e.g. NGOs).	Local impact; public concern/ adverse publicity localised within neighbouring communities.	Suspected reputation damage; local/ regional public concern and reactions.	Noticeable reputation damage; national/ international public attention and repercussions.