

ASSMANG  
MANGANESE

BLACK ROCK MINE OPERATIONS



CAS Project  
TMM hazard rating matrix

TerreSaver

	Low	Medium	High = significant	Extreme = always a hazard
Visibility risk	1) Have visibility diagram 2) Visibility >90% in direction of travel.	1) Have a visibility diagram and visibility is >70% but <90% in direction of travel 2) Don't have a visibility diagram but are sure that the visibility fall within the above limit	1) Have a visibility diagram and visibility is >50% but <70% in direction of travel 2) Don't have a visibility diagram but are sure that the visibility fall within the above limit	1) Have a visibility diagram and visibility is <50% in direction of travel 2) Don't have a visibility diagram and are unsure about visibility
Visibility risk travel	Visibility is >90% in any all directions	Visibility is >70% in direction of travel but <70% in reverse or when turning left or right in direction of travel	Visibility is >50% but <70% in direction of travel but <50% in reverse or when turning left or right in direction of travel	Visibility is <50% in direction of travel but <30% in reverse or when turning left or right in direction of travel
Visibility aid (camera)	1) Yes has rear view mirrors 2) Yes has extended rear view mirrors 3) Yes has cameras fitted for all directions of travel with screen to support operator inside the cab 4) Has additional illumination for all directions of travel 5) Has rotating light to warn for V-V and V-P <b>and or</b> 6) Has good visibility and has no need for any further visibility aids and or cameras	1) Yes has rear view mirrors 2) Yes has extended rear view mirrors 3) Yes has cameras fitted for reverse only with screen to support operator inside the cab 4) Has additional illumination for all directions of travel 5) Has rotating light to warn for V-V and V-P	1) Yes has rear view mirrors Yes has extended rear view mirrors 2) Has additional illumination for reversing 3) Has rotating light to warn for V-V and V-P	1) Yes has rear view mirrors 2) Has additional illumination for reversing 3) Has rotating light to warn for V-V and V-P

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**TMM hazard rating matrix**

	Low	Medium	High = significant	Extreme = always a hazard
<b>Articulation / swing</b>	No - TMM does not articulate or swing (if unsure rate as medium hazard)	No - TMM does not articulate or swing	Yes - TMM articulates or swings but does have park brake articulation or swing disablement (note: this is not the physical lock out by inserting a pin or strut etc during maintenance)	Yes - TMM articulates or swings and does not have park brake articulation or swing disablement. (note: this is not the physical lock out by inserting a pin or strut etc during maintenance)
<b>Beacon</b>	Yes TMM acts as a beacon when parked in a non safe park area and the beacon is automatically activated when park brake is activated	Yes TMM acts as a beacon when parked in a non safe park area and the brake is activated by the operator	No TMM does not act as a beacon when parked in a non safe park area and the brake is activated by the CPS but by the operator	No TMM does not act as a beacon when parked in a non safe park area and the brake is activated by the operator or CPS
<b>Attachment lift</b>	No - TMM does not have attachment lift	Yes - TMM does have attachment lift which is automatically disabled when park brake is applied (note: this is not the physical lock out by inserting a pin or strut etc during maintenance)	Yes - TMM does have attachment lift which must be disabled by the operator when park brake is applied (note: this is not the physical lock out by inserting a pin or strut etc during maintenance)	Yes - TMM does have attachment lift and does not have park brake attachment lift disablement (note: this is not the physical lock out by inserting a pin or strut etc during maintenance)
<b>Areas of operation</b>	1) Mainly from surface to underground workshop 2) Travel down decline into underground workshops	1) Mainly around workshop underground 2) Workshop to tips 3) Workshops to tyre bay 4) Travel to non mining cycle for maintenance 5) Secondary road travel	1) Mainly mining cycle to tips 2) Mainly mining cycle to battery recharge bay 3) Mainly mining cycle to workshop	1) Mainly mining cycle to tips 2) Mainly mining cycle to battery recharge bay 3) Mainly mining cycle to workshop 4) Mainly mining cycle 5) Travel in all areas underground

<div>  <div>CAS Project TMM hazard rating matrix</div>  </div>				
	Low	Medium	High = significant	Extreme = always a hazard
Previous incidents	No incidents	V-E with no reportable injuries (note: reportable means reportable as in section 23 of the MHSA to the DMRE)	1) V-V and or V-P either that were reportable or could have resulted in reportable injuries 2) LoC incidents	V-V and or V-P and or LoC and or V-E that resulted in reportable injuries and or damages that were noteworthy (Note: noteworthy means: the structure, equipment or anything that supports the production effort would require damages to be repaired to continue safe operation and this would be reported to management)