

		1 Unaware	2 Exploratory	3 Defined	4 Adoptive	5 Adaptive
1. Site Requirements	Equipment Specifications and Standards	<ul style="list-style-type: none"> Company is primarily focused on legislative compliance with regards vehicle standards and operation. 	<ul style="list-style-type: none"> Company is actively investigating the elimination of vehicle interactions through mine design, operating procedures and engineering controls. 	<ul style="list-style-type: none"> Company is actively pursuing the elimination of vehicle interactions through mine design, operating procedures, monitoring operator behaviour and engineering controls. 	<ul style="list-style-type: none"> Demonstrated success in the adoption of remote and or engineering controls to eliminate vehicle interactions. Coupled with the integrated use of digital data to optimise operational designs and monitoring of work practices. 	<ul style="list-style-type: none"> Implemented leading industry practice in the design of remote and or engineering controls to eliminate vehicle interactions. Coupled with the integrated use of digital data to optimise industry designs and monitoring of work practices.
	Mine Design	<ul style="list-style-type: none"> Equipment Specifications and Standards are primarily focused on practicality but in terms of the safety and health of employees consider legislative compliance as a minimum standard. 	<ul style="list-style-type: none"> Equipment Specifications and Standards are focused on the safety and health of employees, based on legislative compliance as a minimum, and include ad-hoc VI controls and standards. 	<ul style="list-style-type: none"> Vehicle interaction is identified as a critical hazard with the company having defined administrative, engineering and design standards that considered VI controls. 	<ul style="list-style-type: none"> Vehicle interaction is identified as a critical hazard with the company actively integrating all levels of control to eliminate the risk. 	<ul style="list-style-type: none"> Vehicle interaction is identified as a key critical hazard with the company actively integrating all levels of control to exceed industry leading practices.
2. Segregation Controls	Berms, Access control, Segregation of roadways, Time schedule	<ul style="list-style-type: none"> Company is primarily focused on legislative compliance with regards vehicle standards and operation. 	<ul style="list-style-type: none"> Ad-hoc references to VI requirements in Mine design and planning 	<ul style="list-style-type: none"> VI requirements considered in Mine design and planning of new projects but not in existing operations 	<ul style="list-style-type: none"> VI requirements are actively pursued in all mine design and planning processes 	<ul style="list-style-type: none"> Actively integrates learning from levels 1-9 into mine designs and planning, retrofitting VI principles to existing operations
		<ul style="list-style-type: none"> Two-way traffic. HME and LVs use the same roads. Traffic management plans do not consider hazards and risks associated with vehicle interaction. Time schedules not considered. Traffic incidents not analysed to identify potential traffic management weaknesses 	<ul style="list-style-type: none"> Two-way traffic. HME and LVs use the same roads. Time schedules to segregate / ease traffic is being considered. Accidents / incident data available but not actively analysed. Several crossings in place 	<ul style="list-style-type: none"> Two-way traffic, HME and LVs segregated. Effective berms, access control, segregation of roadways, time schedules implemented. Incident data is used to remove risks in active mine area. Crossing being replaced with T-junctions 	<ul style="list-style-type: none"> One-way traffic HME and LV equipment segregated. Active management of high-risk areas. No crossings, only T-junctions. Active data management 	<ul style="list-style-type: none"> One-way traffic HME and LV equipment fully segregated, crossings replaced with bridges. Real time management of high-risk areas with live data streaming
3. Operating Procedures	SOP's, maintenance, road rules, quality control, lockout, etc.	<ul style="list-style-type: none"> Only basic level operating procedures and maintenance are in place. No consideration of technological advances to improve operational or engineering controls 	<ul style="list-style-type: none"> Basic level operating procedures and maintenance are in place Technological advances to improve operational controls are being considered 	<ul style="list-style-type: none"> Operating procedures and maintenance are in line with VI requirements. Effective traffic management plans in place 	<ul style="list-style-type: none"> Operating procedures and maintenance are in line with VI requirements. KPI's that drive maturity in place Traffic management analysed, and improvements made to layouts 	<ul style="list-style-type: none"> Operating procedures and maintenance are in line with VI requirements. KPI's that drive maturity in place. Real time traffic monitoring in place Critical control monitoring is in place
4. Authority to Operate	Training, licenses, induction, access control	<ul style="list-style-type: none"> Basic level of authority to operate exists only to meet minimum legal requirements 	<ul style="list-style-type: none"> Basic level of authority to operate exists, mostly manual systems and enforcement is consistent. Limited training and assessment 	<ul style="list-style-type: none"> High quality training and assessment are in place to ensure operators are competent. Engineering control for Primary mobile equipment in place 	<ul style="list-style-type: none"> Control systems are in place that integrates the authority to operate process with engineering controls to eliminate the opportunity for failure. High quality training and assessment are in place to ensure operators are competent. 	<ul style="list-style-type: none"> Control systems are in place that automates engineering controls to eliminate the opportunity for failure. Advanced training and assessment are in place using data feedback from Levels 7 - 9 combined with technologies such as virtual reality.
5. Fitness to Operate	Fatigue state, drug & alcohol, medicals	<ul style="list-style-type: none"> Basic levels of fitness to operate exists with inconsistent level of application. Drug and Alcohol testing is conducted for causation only. 	<ul style="list-style-type: none"> Basic levels of fitness to operate exists with consistent application. Ad-hoc drug and alcohol testing is conducted. Ad-hoc medicals conducted with no specified medical limitations 	<ul style="list-style-type: none"> Routine alcohol and drug testing in place. Engineering controls implemented for real time fatigue monitoring. Fitness for work training and awareness campaigns in place. 	<ul style="list-style-type: none"> Automated alcohol testing as part of the access procedure, with periodic drug screening. Engineering controls implemented for real time fatigue monitoring with automated escalation. 	<ul style="list-style-type: none"> Automated alcohol testing as part of the access procedure, with periodic drug screening. Engineering controls implemented for real time fatigue monitoring with automated escalation. Integrated systems to allow trending and analytics as a lead indicator, with proactive training and interventions.
6. Operating Compliance	Pre-start, safety tests, machine health, event recordings	<ul style="list-style-type: none"> Minimal operating procedures in place. Low levels of socialization of procedures within the operation. No formal maintenance and pre-start systems in place. 	<ul style="list-style-type: none"> Robust operational procedures but not well socialised and consistently enforced. Basic maintenance and pre-start process that is auditable but does not have a continuous improvement process in place. 	<ul style="list-style-type: none"> Robust operational procedures that are well socialised and consistently enforced. Mature maintenance and pre-start process that is auditable and has a continuous improvement process in place. 	<ul style="list-style-type: none"> Robust operational procedures that are well socialised and consistently enforced. Integrated controls to manage pre-starts and safety checks fully implemented. Closed loop feedback from levels 7 - 9 are used as an input to into training, continuous improvement and maintenance programs. 	<ul style="list-style-type: none"> Engineering or higher order controls to automate and integrate pre-starts and safety checks fully implemented. Real time monitoring and escalation of operator behaviour and machine health. Advanced training and assessment in place using data feedback from vehicle telemetry, combined with technologies such as virtual reality.
7. Operator Awareness	Cameras, live maps, mirrors, lights, visible delineators	<ul style="list-style-type: none"> Vehicles operate in basic form i.e. as supplied. No additional technological controls implemented to improve operator awareness e.g. Cameras, live maps, mirrors, lights, visible delineators. 	<ul style="list-style-type: none"> Vehicles operate in basic form i.e. as supplied. Additional technological controls to improve operator awareness and to provide additional context to the operator are being researched and considered 	<ul style="list-style-type: none"> Additional technological controls to improve operator awareness, warning operator of a potential abnormal situation and to provide additional context to the operator have been concluded, pilot sites been identified, and an implementation plan defined. 	<ul style="list-style-type: none"> A full suite of operator awareness controls (Appropriate to the site, vehicle and conditions) are implemented that provide information to enhance the operator ability to observe and understand potential hazards in the vicinity of the machine 	<ul style="list-style-type: none"> A full suite of operator context and awareness controls are implemented Real-time maps and monitoring in place. Operators warned of any potential abnormal situation
8. Advisory Controls	Alerts: Proximity, Fatigue, Over-speed, Vehicle stability	<ul style="list-style-type: none"> Vehicles operate in basic form i.e. as supplied. No additional technological controls implemented to monitor fatigue, over speeding, proximity or stability. 	<ul style="list-style-type: none"> Vehicles operate in basic form i.e. as supplied. Additional technological controls considered but not yet implemented E.g. fatigue monitoring, over speeding, proximity or stability 	<ul style="list-style-type: none"> Technological controls for vehicle to determine imminent threat of collision have been identified and a company strategy in place to further implementation of this stage. Adoption plan is in defined for technology that will be implemented 	<ul style="list-style-type: none"> Technological controls for vehicle to determine imminent threat of collision and provide relevant information to the operator have been identified and implemented e.g. fatigue levels, over speeding, proximity of other vehicles and vehicle stability. This technology will provide the operator with specific actions on how to intervene. Operator will assess information and determine action before intervening. 	<ul style="list-style-type: none"> Full implementation of integrated fatigue levels awareness which includes: Over speeding, Proximity of vehicle to vehicle, vehicle to person and vehicle to other Vehicle stability.
9. Intervention Controls	Interlocks: Prevent Start, Slow-Stop, Roll-back, Retarder	<ul style="list-style-type: none"> Vehicles operate in basic form i.e. as supplied. No additional technological controls implemented to automatically intervene and take some Form of machine control to prevent or mitigate an unsafe interaction 	<ul style="list-style-type: none"> Vehicles operate in basic form i.e. as supplied. Additional technological controls for the vehicle to automatically intervene to prevent or mitigate an unsafe interaction are being considered but not yet implemented. 	<ul style="list-style-type: none"> Potential intervention technologies have been identified and is being researched. Adoption plan is in defined for technology that will be implemented 	<ul style="list-style-type: none"> Intervention technologies have been identified and an implementation plan is in place: Machine to assess the situation based on information received from technology and then react. Machine to relinquish control to the operator should the operator take evasive action A manual override is required to override after collision intervention scenario has occurred 	<ul style="list-style-type: none"> Full implementation of Technologies that automatically intervene and take some form of machine control to prevent or mitigate an unsafe interaction E.g. retard and stop. The operator is removed from the risk (e.g. Tele-remote)