



**MANDELA MINING PRECINCT**  
MINDS FOR MINES

<b>Milestone 1 Overview</b>		
<b><i>Programme</i></b>	Mechanised Drill and Blast	
<b><i>Work package</i></b>	WP 4.4 – Equipment and communication utilisation	
<b><i>Milestone Progress Report</i></b>	1. Literature review	
<b><i>Programme Manager</i></b>	Martin Pretorius	
<b><i>Research Agency</i></b>	Enterprises University of Pretoria	
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<b><i>Project Lead</i></b>	Dr Abrie J Oberholster	
<b><i>Project Team</i></b>	Prof P Stephan Heyns	EUP
	Prof Johan W Joubert	EUP
	Prof Waldo Kleynhans	EUP
	Mr Fleckson Magweregwede	CSIR
	Dr Bertie D Meyer	EUP
	Dr Abrie J Oberholster	EUP
	Mr Eugene P Preis	EUP
	Prof Johann Wannenburg	EUP



## Appendix A

### International and local standards and guidelines

**Table 1: Recommended international standards relevant to health and safety and risk management**

Standard number	Title
IEC 60204-1:2016	Safety of machinery – Electrical equipment of machines—Part 1: General guidelines
IEC 61508-1:2010	Functional safety of electrical/electronic/programmable electronic safety-related systems—Part 1: General requirements
IEC TS 62443-1-1:2009	Industrial communication networks–Network and system security–Part 1-1: Terminology, concepts, and models
ISO 13849-1:2015	Safety-related parts of control systems—Part 1: General principles for design
ISO 13849-2:2012	Safety-related parts of control systems—Part 2: Validation
ISO 31000:2018	Risk management—Guidelines
ISO 20474-1:2017	Earth-moving machinery – Safety—Part 1: General requirements
ISO 19296:2018	Mining – Mobile machines working underground—Machine safety
ISO 17757:2017	Earth-moving machinery and mining—Autonomous and semi-autonomous machine system safety
ISO 73:2009	Risk management—Vocabulary
ISO 12100:2010	Safety of machinery – General principles for design—Risk assessment and risk reduction
ISO 45001:2018	Occupational health and safety management systems—Requirements with guidance for use
ISO 7731:2003	Ergonomics — Danger signals for public and work areas — Auditory danger signals
SANS 10104:1991	Code of practice: Handrailing and balustrading (safety aspects)
EN 954-1:1998	Safety of machinery - Safety related parts of control systems - General principles for design
AFRS guidelines	
SRMP guidelines	

**Table 2: Communications standards**

Standard number	Title
IEEE 802.11:2018	Telecommunications and information exchange between systems Local and metropolitan area network--Specific requirements Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications
IEC 61158:2019	Industrial communication networks - Fieldbus specifications
IEC 61784:2019	Industrial communication networks - Profiles

**Table 3: Industry design and engineering standards**

Standard number	Title
ANSI/ISA-95.00:2010	Enterprise-Control System Integration
IEC 61508-1:2010	Functional safety of electrical/electronic/programmable electronic safety-related systems—Part 1: General requirements
ISO 13849:2015	Safety-related parts of control systems
ISO 20474-1:2017	Earth-moving machinery –Safety—Part 1: General requirements (See also parts 2–10 for specific types of machinery)



ISO 19296:2018	Mining—Mobile machines working underground—Machine safety
ISO 17757:2017	Earth-moving machinery and mining —Autonomous and semi-autonomous machine system safety
ISO 10007:2017	Quality management—Guidelines for configuration management
ISO/IEC/IEEE 42010:2011	Systems and Software Engineering—Architecture description
ISO/IEC/IEEE 15288:2015	Systems and Software Engineering – System life cycle processes
SAE J3016	Taxonomy of Terms Related to Driving Automation Systems