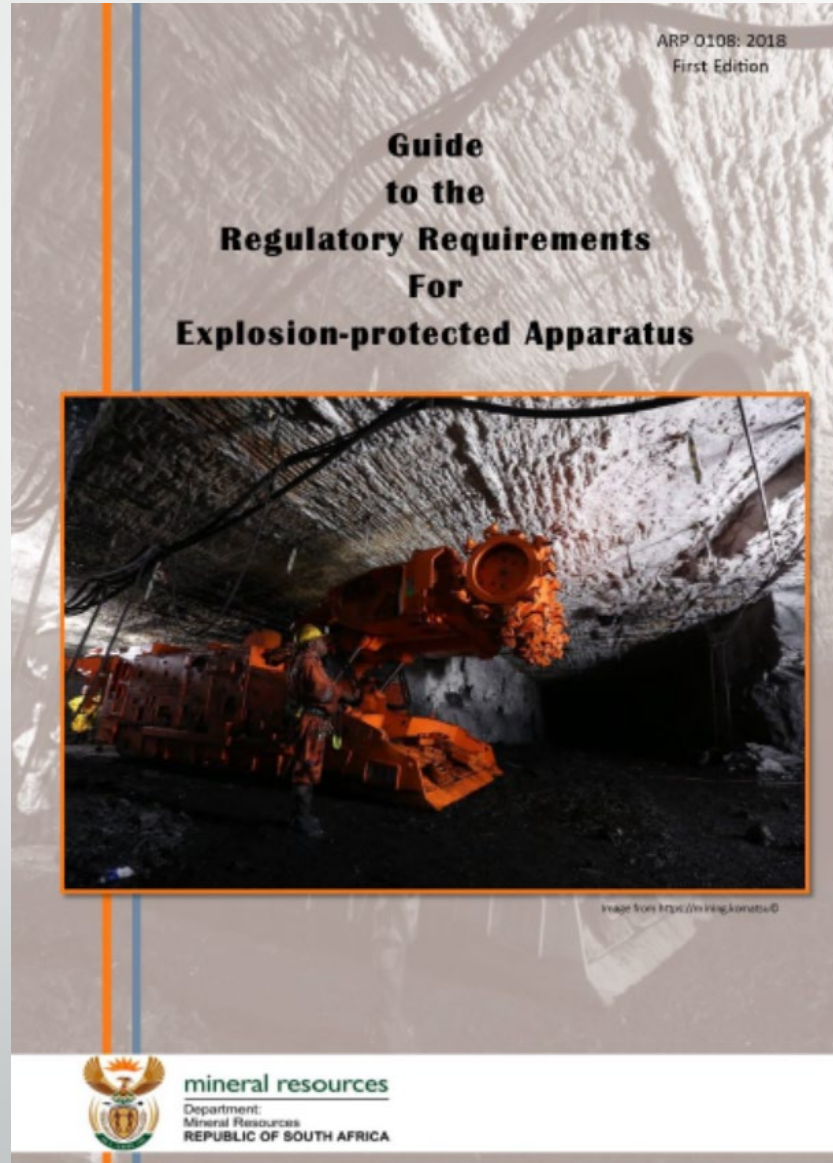




# Mining and Surface Certification (Pty) Ltd



**The ARP 0108: 2018 & Legal Requirements for the Mining Engineer or responsible Legal Appointee**

***Presenter: G Schepers***





Mining and Surface Certification (Pty) Ltd

## ***The History of Explosion Prevention***







# Mining and Surface Certification (Pty) Ltd

1942 China Benxihu Colliery Explosion (1549 Deceased)

1993 RSA Sasol Middelbult Explosion (53 Deceased)

2010 New Zealand Pike River Explosion (29 Deceased)

2013 China Babao Coal Mine Explosion (36 + 17 Deceased)

The Ex industry is  
saving lives with clear  
declining fatalities  
and incidents





# Mining and Surface Certification (Pty) Ltd

## Regulatory Structure for Ex equipment



mineral resources  
Department:  
Mineral Resources  
REPUBLIC OF SOUTH AFRICA

1) The DMR makes use of the Mine Health & Safety Act as basis for legal requirements. They have taken ownership of the ARP0108 (Regulatory requirements for explosion protected apparatus). They enforce the requirements as listed in these Acts and regulations.



2) DMR approved inspection authority and ATL Mining & Surface certification is responsible for ensuring compliance to the requirements provided by the DMR.



3) Equipment OEM / Repairers design and approve their products according to the standard / regulatory requirements.



4) End users to rely on the continued support from OEM's and repairers to satisfy the requirements of the national standards and regulatory requirements.





# Mining and Surface Certification (Pty) Ltd

## ***Legal Responsibilities – Underground Mining***

**Department of Mineral Resources (DMR)**

**Mine Health and Safety Act No 29 of 1996 and Regulations (Revised 12<sup>th</sup> Edition)**

**Regulations Chapter 3**

- 3.37 The employer must take reasonably practicable measures to ensure that all electrical apparatus used in hazardous area shall be explosion protected and certified by an inspection authority (IA) **certificate issued by an accredited test laboratory.**
- 3.38 The employer shall take reasonably practicable measures to ensure that any type and design of explosion protected apparatus shall at all times be identified in an **inspection authority** (IA certificate and an identification number shall be allocated to such apparatus by the accredited test laboratory.
- 3.39 The employer shall take reasonably practicable measures to ensure that explosion protected apparatus is not used at a mine **unless the manager is in possession of a copy of the inspection authority certificate.** The identification number referred to in regulation 3.36 must be clearly and indelibly marked on the apparatus or on a metal plate (other than a light metal) permanently fixed to the apparatus.



# Mining and Surface Certification (Pty) Ltd

## ***Legal Responsibilities – Underground Mining Cont.***

**Department of Minerals and Energy (DME),  
(Mines Health and Safety ACT) MHS ACT:**

### **Regulation 2(1) of MHS Act (Act 29 of 1996) (Mines Health and Safety)**

- 21.17.1** The manager shall identify and define any hazardous area record it on a plan or in a register provided for that purpose.
- 21.17.2** Electrical apparatus used in a hazardous area shall be explosion protected and certified as such in a test report by an inspection authority approved by the Chief Inspector.
- 21.17.5** If any **repair or modification** which may affect its explosive-protected apparatus characteristics NOT by an organization not licensed by the approved inspection authority, the apparatus shall not be put into service in a hazardous area unless a new test report has been issued by the inspection authority.
- 21.17.6** All persons operating, running and maintaining explosion-protected apparatus are **properly instructed**



# Mining and Surface Certification (Pty) Ltd

***From the ARP0108***

***What is an ATL?***

## **Accredited test laboratory (ATL)**

Test laboratory that is accredited by a **government-endorsed accreditation** body, and approved by the relevant regulator(s) to carry out tests and certification of Explosion protected equipment.

***Who issues a COC / DOC for a flameproof enclosure?***

## **Declaration of conformance (DOC)**

Document supplied by a manufacturer or a repairer that is a **member of a mark scheme**, declaring that the equipment covered by the declaration has been manufactured or repaired in accordance with the requirements of the mark scheme

***NOTE: Approved Inspection Authority (AIA) IS NOT formally defined for mining.***



# Mining and Surface Certification (Pty) Ltd

## ***What is an I.A. Certificate?***

### **IA certificate**

National certificate issued for Ex equipment by an ATL endorsing conformance with the relevant national standards

**NOTE 1:** IA certificates apply to both surface (Group II and Group III) and mining (Group I) applications.

**NOTE 2:** The entity who submits the equipment for testing, and in whose name the certificate is issued is described as the "certificate holder", the issuing ATL is the legal owner of the certificate.

*Do we have all relevant IA certificates on-site? If the answer is no, this could possibly lead to a section 54.*

*Can a COC / DOC from the supplier replace an I.A. certificate? The answer is no, many OEM's / Suppliers fail to present the IA certificate with equipment supplied to mines*





# Mining and Surface Certification (Pty) Ltd

## *Is my certificate valid?*

### **ANNEX A: Upgrading and maintenance of EPA certificates for mines and factories** (normative)

**A.1** In South Africa, all explosion protection equipment (EPA) used in **underground mines** (Group I) and on the surface (Groups II and III) shall be covered by an **IA certificate**. This includes machines; to qualify for certification a machine shall be made up of equipment with valid certification. The requirements given in A.2 to A.19 cover the validity of IA certificates.

**A.2** All IA certificates issued shall have a validity period of **10 years for manufacturing purposes**. **EPA having been manufactured under a valid IA certificate will not be affected when the certificate expires**; in other words, such products will be considered to still have **valid certification**. An IA certificate based on overseas certification will be valid, depending on the continued validity of the **overseas equipment** certification as well as product quality assurance, for a maximum period of **three years**. It is the responsibility of the IA certificate holder to ensure that an updated quality system certificate is submitted to the relevant ATL if the validity period is less than three years.



# Mining and Surface Certification (Pty) Ltd

## ***How is my certification affected if equipment is modified? Am I legally compliant?***

**A.3** If, during a validity period or if the equipment is in service after its certificate has expired, the product is **modified or changed** the equipment shall be re-evaluated, this shall be done by an ATL and re-certified. This **re-evaluation or re-certification (or both)** shall take into account the **current edition** of the national standard used for certification and the complete product shall meet the requirements of that standard.

Note: Internal electrical layouts change, components are added, different components utilized by mine employees etc.



# Mining and Surface Certification (Pty) Ltd

## ***Product Modifications***

***Changing a PSU type / supplier on a methane system even though both are approved devices?***

**5.8** Intrinsically safe systems (loops) shall be type approved to SANS 60079-25 by an ATL.

**A.10** In cases where any system safety parameter of an intrinsically safe apparatus ***is changed***, consideration shall be given to the safety of the loops in which the apparatus is used, and such loops shall be re-certified.





# Mining and Surface Certification (Pty) Ltd

## ***Guidance for the repair of Ex equipment?***

**A.5** Repairs and overhauls shall be carried out in such a way that they will ***not invalidate the IA certificate***. Repairs and overhauls carried out by a party other than the certificate holder, where the repairer or overhauler is not in possession of the certification documents, shall be carried out in such a manner that the product meets the ***minimum requirements of the applicable national standards*** to which the product was originally certified, or any more recent edition.



# Mining and Surface Certification (Pty) Ltd

## *Repair of Ex equipment cont.*

A repair facility shall either be **certified** under an approved product certification scheme to repair or overhaul specific EPA, or shall submit repaired products for batch testing. A declaration of conformance **(DOC) shall be issued** by the repairer with each repaired product.

A repairer of Ex equipment that is a member of a product **certification scheme** shall operate in accordance with an appropriate quality system such as SANS 9001. The requirements of the IECEx operational document No.

Ex OD014 Version 2 (see bibliography) can be used as a guideline, and are based on SANS 9001, with the addition of specific repair requirements for Ex equipment.



# Mining and Surface Certification (Pty) Ltd

## *Repair of Ex equipment cont.*

**A.6** Should a product be modified or changed in such a way that it no longer complies with the certified design, it shall be re-submitted to an ATL for re-evaluation.

This re-evaluation shall take into account the current national standard and the product shall comply with that standard.

This applies to newly manufactured as well as ***second-hand products.***





# Mining and Surface Certification (Pty) Ltd

## ***V/VM Numbers?***

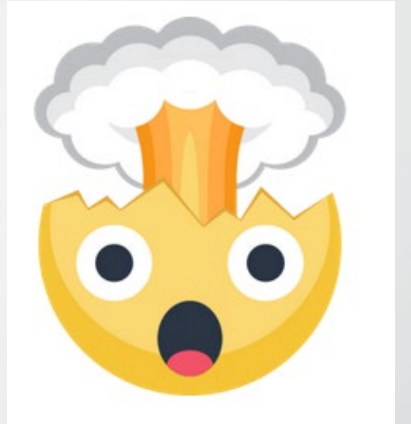
**A.7** Existing IA certificates and government mining engineer (GME) certificates (the latter associated with V or VM numbers) issued  
a) before 1998 are no longer valid, and

b) after 1998 (only IA certificates), shall not be valid after October 2015.

New IA certificates shall have a validity period of 10 years from the date of issue. The date of issue and the date of expiry shall be stated on new certificates.

From Annex K:

**K4** All GME certificates previously numbered V or VM have expired in October 2010 and therefore **no new equipment** may have any of these numbers displayed on them.





# Mining and Surface Certification (Pty) Ltd

## *Is a repaired enclosure marked? Who repaired it?*

**A.13** Any repairer shall attach to the product a durable, legible and noticeable label that gives at least the following information:

- a) the repairer's certificate number (when operating under an approved product certification mark scheme for Ex certified equipment);
- b) the IA certificate number;
- c) the name of the repairer; and
- d) the month and year of repair or overhaul.

**A.14** The label fitted by **the original** equipment manufacturer (OEM) **shall not be removed**, but labels fitted by previous repairers shall be removed. If the OEM label is missing, the repairer may submit the finished product to an ATL and have the product re-certified to the current national standards. In this case, the repairer shall fit a supplier's plate displaying the new IA certificate number.



# Mining and Surface Certification (Pty) Ltd

## *What about second hand equipment?*

**A.15** When EPA subject to the relevant national legislation (see foreword) changes ownership, the seller shall provide the **IA certificate** plus either a mark scheme certificate or a batch test report providing proof of certification (see clause 4), to the buyer. The buyer shall ensure that the relevant documentation is submitted. The seller shall ensure that the equipment is compliant with the approved design. If these requirements are not fully met, the equipment shall be considered to be un-certified and shall be submitted to an ATL for re-testing to the approved standards and shall be issued with a **new IA certificate number**, in accordance with the relevant national legislation (see foreword).

*Is secondhand equipment with a VM number valid? The ARP0108 will allow ATL's to re-certify the equipment thereafter  
IA numbers will be allocated to such apparatus given that they comply with the latest edition of the national  
standards. See next slide.*





# Mining and Surface Certification (Pty) Ltd

**A.18** When the equipment described in A.17 is submitted for repair or refurbishment and proof of previous national certification exists, an IA certificate shall be issued as follows:

- a) For repairers operating under a mark scheme, a **special IA certificate** (see 3.1.21) covering that type of product shall be issued in the name of the repairer, after assessment by an ATL.
- b) For repairers **not operating under a mark scheme**, a special IA certificate covering that particular **unit (serial number)** will be issued in the name of the end user after assessment by an ATL. Repairs of other units of the same type of product will require a new IA certificate to be issued after assessment by an ATL of those units. Otherwise the product shall be treated as a prototype.



# Mining and Surface Certification (Pty) Ltd

## DMR Appointed ATL

  
Mining And Surface Certification (Pty) Ltd  
(Pty) Ltd: 2015/021934/07

IN TERMS OF REGULATION 21.17.2 OF THE MINERALS ACT (INCORPORATION THE MINE HEALTH AND SAFETY ACT) AND REGULATION 8 (1) OF THE ELECTRICAL MACHINERY REGULATIONS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT

|                                   |  |   |  |                                     |  |   |  |
|-----------------------------------|--|---|--|-------------------------------------|--|---|--|
| IA CERTIFICATE                    |  | MASC M19-2118X  |  | Issue                               |  | 0   |  |
| Issue Date                        |  | 13 November 2019  |  | Expiry Date                         |  | 13 November 2029  |  |
| Applicant                         |  | ExIS Engineering (Pty) Ltd, 8 Graphite Close, Driehoek, Germiston Ext. 28, South Africa   |  |                                     |  |   |  |
| Manufacturer                      |  | ExIS Engineering (Pty) Ltd, 8 Graphite Close, Driehoek, Germiston Ext. 28, South Africa   |  |                                     |  |   |  |
| Description (See "Annex A" below) |  |   |  |                                     |  |   |  |
| Equipment                         |  | Controller Panel  |  | Type                                |  | Controller Panel  |  |
| Photo                             |  |    |  |                                     |  |   |  |
| MARKING:                          |  | Applicant / Manufacturer  |  | ExIS Engineering (Pty) Ltd          |  |   |  |
|                                   |  | Type  |  | Controller Panel                    |  |   |  |
|                                   |  | Voltage   |  | 12-24V                              |  |   |  |
|                                   |  | Amps  |  | 20A                                 |  |   |  |
|                                   |  | Ex Marking  |  | Ex db I Mb                          |  |   |  |
|                                   |  | IA Number   |  | MASC M19-2118X                      |  |   |  |
|                                   |  | Serial Number   |  | (See "Conditions of Certification") |  |   |  |
|                                   |  | Safety Parameters   |  | See "Annex A" below                 |  |   |  |
| WARNING(S)                        |  | "ISOLATE ELSEWHERE BEFORE OPENING THIS COVER"<br>"DO NOT OPEN WHEN ENERGIZED OR AN EXPLOSIVE ATMOSPHERE IS PRESENT"   |  |                                     |  |   |  |
| Compliance:                       |  | The equipment as described above and in MASC report 19-2118 has been allocated the rating <u>Explosion Protected Ex db I Mb</u> utilizing the SANS/IEC Standards: <ul style="list-style-type: none"><li>• SANS (IEC) 60079-0:2018 General requirements</li><li>• SANS (IEC) 60079-1:2015 Flameproof enclosures d</li><li>• ARP D108:2014 Regulatory requirements for explosion protected apparatus</li></ul> Special conditions of safe use X: <ul style="list-style-type: none"><li>• See "Annex A" below</li></ul> Conditions of manufacture: <ul style="list-style-type: none"><li>• See "Annex A" below</li></ul> |  |                                     |  |   |  |
| W Hayward<br>TECHNICAL OFFICER    |  |    |  | F du Toit<br>TECHNICAL SPECIALIST   |  |  |  |
|                                   |  | This certificate only covers the sample submitted and does not cover production units.<br>According to the relevant requirements of the MHS Act and the OHS Act, production units of explosion protected equipment are required to comply with third party quality assurance (an approved mark scheme or batch testing by an accredited test laboratory).   |  |                                     |  |   |  |

Page 1 of 2

  
sanas  
Testing Laboratory  
T0444



Apparatus in hazardous locations is subject to the following provisions as applicable, which shall be adhered to:  
• SANS 10088 requirements  
Any conditions mentioned in the above certificate  
Any relevant requirements of the MHS Act and code of practice enforced in terms of regulations 21.17.2 of the minerals act  
Any restrictions and conditions enforced by the chief inspector of mines, principal inspector (Group 1) equipment or chief inspector of factories (Group 2) equipment  
This certificate may only be reproduced in full  
This certificate is not transferable and remains the property of the issuing body  
Mining And Surface Certification (Pty) Ltd  
Unit 5 Lufya Park, 45 Jurg Ave, Harmsburg Ext 87  
Centurion, 0157

## IA Certificate Example

- ✓ A single certificate can cover a range or multiple units
- ✓ A certificate must be delivered with the product from the supplier
- ✓ Machines and assemblies qualify for a certificate as well
- ✓ Do not confuse COC/DOC with IA certificates!!!

Marking to correspond with equipment labeling

Additional accreditation



# Mining and Surface Certification (Pty) Ltd

## Batch Report Example

- ✓ Issued to clients after successful batch testing
- ✓ Issued to clients who do not have a Mark scheme / Permit
- ✓ A copy of the batch report and IA certificate must be delivered with the product from the supplier
- ✓ Batch report will list all serial numbers covered by the batch approval. Note: Not all serial numbers listed on the batch report will be for equipment supplied to a specific mine / company.

Mining And Surface Certification CC

Page 3 of 3

MASC Report No 12-848

### 6. CONCLUSIONS

The units as described in Paragraph 2 above **COMPLIED** with the requirements set out in the type approval documentation.

Approved explosion protection rating : Ex e I IIC T6 Gb  
: Ex tD A21/A22 T85°C IP65 Db  
Inspection Authority Certificate : SAEx S/11-192X

### 7. Special conditions of use (X):

- Only Ex e (or Ex de) certified cable glands shall be used as cable entries. Any unused gland entries shall be plugged with certified Exe blanking plugs.
- Only WDU 2.5 / 4 Ex e (or Ex I) certified terminals may be fitted inside the enclosure and the maximum certified current per terminal shall not be exceeded.
- The number of terminals and current per terminals shall be such that  $ni < 0.6NI$ , where:

$N$  is the maximum number of terminals that can physically safely be installed in the enclosure  
 $I$  is the certified rating of the terminal (21A for WDU 2.5 / 4)  
 $n$  is the actual number of terminals  
 $i$  is the actual current per terminal

- The installation of cable glands and blanking plugs shall be done in such a way that the IP65 rating of the enclosure is maintained.
- Only fixing lugs provided by the manufacturer may be used.
- The Ex I rating of the enclosure is only applicable when blue Ex certified terminals are used and if all circuits entering and exiting the terminal box are intrinsic safe.
- All non current carrying conductive components shall be bonded to the earth terminal.

### 8. VALIDITY OF THIS REPORT

This report only covers the serial numbers of the equipment listed in this report. Other identical units will be covered by additional testing and/or inspection.

Any modification to the equipment, or exceeding its ratings, or using another atmospheres as described in the original type approval, will invalidate the applicability of this report to these units

F du Toit  
TECHNICAL SPECIALIST

A Dunckley  
TECHNICAL OFFICER

### Mining And Surface Certification

This document is issued based on Mining And Surface Certification's Standard Contract terms and conditions available on request.

While every endeavour is made to ensure that a test / assessment is representative and accurately performed, and that a report is accurate in the quoted results and conclusions drawn from the test / assessment, MASC or its members/employees shall in no way be liable for any errors made in carrying out the test / assessment or for any erroneous statement, whether in fact or in opinion, contained in a report issued pursuant to a test / assessment.

MASC takes no responsibility for any non-conformances, exclusions or any results / assessments not in compliance with the standards. By marking the equipment in accordance with the documentation / standard, the manufacturer attests on his own responsibility that the equipment has been constructed in accordance with the applicable requirements of the relevant standards and that the routine verifications and routine tests have been successfully completed and the product complies with the documentation and standards (s).

This document is only for use and application in South Africa. It is issued based on National interpretations and accepted practices.

This document may only be reproduced in full

Mining And Surface Certification CC Reg No: 2008/202081/23

Members: Roelof Viljoen & Francois du Toit

Unit #5, Lelyte Park, 45 Jung Avenue, Hennops Park Ext 87, Centurion, 0157 0 P.O. Box 14344, Clubview, 0014

Tel: 012 653 2950 0 Fax: 086 605 8568

e-mail: info@masc-cc.co.za





# Mining and Surface Certification (Pty) Ltd

## Example: Permit

  
Mining & Surface Certification (Pty) Ltd  
(Pty) Ltd: 2015/021934/07

**MASC PERMIT NO: NUMBER**  
This permit authorizes  
**CLIENT NAME**  
Physical Address

To apply the MASC Certification Mark, illustrated below,  
To repair and refurbish certified motors in  
Compliance with the requirements of

**SANS 60079**  
Explosive atmospheres  
Part O: General Requirements  
Part I: Flameproof Motors "d"  
Part 15: Non-Sparking Motors "Ex nA"  
Part 31: Dust Ignition Proof "Ex t"  
Part 19: Equipment repair, overhaul and reclamation

  
Ex d n t  
(SANS 60079-0/1/15/19/31)  
Permit No: Number  
Display Copy

  
PLACE  
STICKER  
HERE

Permit Conditions

This permit consists of a front page together with Annexure 1 & MASC Standard Terms and Conditions  
The permit and each annexure:  
- Are valid for any situation  
- Are identified with the company name on each page  
- Is identified by applicable permit number  
- Is valid subject to ongoing compliance with the Permit Conditions  
- The Company is allowed to repair equipment as per their allocated repair allowance (documented)

  
T Mouton  
Mark Scheme Manager

Date of Issue:  
30th of November 2016

Expiry Date:  
30th of November 2019

Original Date of Issue:  
30th of November 2016

THIS DOCUMENT MAY NOT BE REPRODUCED UNLESS  
ACCOMPANIED BY A COPY OF ANNEXURE 1 (Terms & Conditions)



# Mining and Surface Certification (Pty) Ltd

## Example: Machine Certificate



A **Proximity Detection Intervention** system was additionally installed on the originally certified machine. The following equipment was installed:

| QTY: | Description:                | Manufacturer: | IA Number:      |
|------|-----------------------------|---------------|-----------------|
| 1    | FLP Display Unit            |               | MASC M/19-0575X |
| 3    | Solenoid and Solenoid block |               | MASC M/19-4566X |



Mining And Surface Certification (Pty) Ltd



Certificate Number: MASC M/20-5036X  
Issue: 20 January 2020  
Expire: 20 January 2030  
Page: 1 of 2

DMR Appointed Inspection Authority

### INSPECTION AUTHORITY CERTIFICATE

THIS CERTIFICATE IS ISSUED AS AN I.A. CERTIFICATE IN TERMS OF THE RELEVANT REGULATIONS OF THE MINERALS ACT (INCORPORATING THE MINE HEALTH AND SAFETY ACT) AND THE ELECTRICAL MACHINERY REGULATIONS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT.

|                        |                                 |
|------------------------|---------------------------------|
| IA Certificate number: | MASC M/20-5036X                 |
| Equipment Supplied by: | Glencore – TUGO (Ngala Section) |
| Applicant:             | Expert Mining Solutions cc      |
| Address:               | 19 Woltemade Street             |
|                        | Witbank 1034                    |
|                        | South Africa                    |

Equipment: Wright Load Haul Dump Machine  
Type: Barlows 356  
Serial Number (Mine): 42  
Serial Number (OEM): GLHD0042  
Ex rating(s): Ex db I Mb  
Original Machine IA Number: M-XPL/19-1608

Identified by Inspection Authority number

MASC M/20-5036X  
(This certificate to be kept on record in the machine file for reference)

### DESCRIPTION:

A **Proximity Detection Intervention** system was additionally installed on the originally certified machine. The following equipment was installed:

| QTY: | Description:                | Manufacturer: | IA Number:      |
|------|-----------------------------|---------------|-----------------|
| 1    | FLP Display Unit            | Ridgeback     | MASC M/19-0575X |
| 3    | Solenoid and Solenoid block | Uzoba         | MASC M/19-4566X |

The machine is hereby certified **"Explosion Protected"**, suitable for use in hazardous locations and environment at limiting temperatures, fault categories and hazard occurrence frequencies as stated below, all as determined during tests and inspections conducted in accordance with the relevant requirements of the standards, specifications or regulations listed in the table below:

|                          |   |
|--------------------------|---|
| SANS (IEC) 10088-2: 2013 | "The installation, inspection and maintenance of equipment used in explosive atmospheres – Part 2: Electrical equipment installed underground in mines" |
|--------------------------|---|




This document may only be reproduced in full.  
This certificate is not transferable and remains the property of the issuing body.  
This document will not be supported by MASC for certification purposes outside the borders of South Africa.

Mining And Surface Certification (Pty) Ltd Reg No: 2015/021934/07  
Members: Robert Viljoen & Francois du Toit  
Unit #5, Lelie Park, 45 Jurg Avenue, Hennippenburg East 07, Centurion, 0157 1 P.O. Box 14344, Clubview, 0014  
Tel: 012-663 2050 & Fax: 086 626 8960  
e-mail: info@masc-ai.co.za



# Mining and Surface Certification (Pty) Ltd

## Example of a Equipment Audit conducted by MASC

| Machine OEM / Supplier:   | Machine Description: | Machine Type: | Machine Serial No (OEM): | Machine Serial No (Mine): | Machine IA Certificate No: | Machine Report No: | File Attachment:  | Comment:                             |
|---|----------------------|---------------|--------------------------|---------------------------|----------------------------|--------------------|---|--------------------------------------|
|  Central | Continuous Miner     | 12HM9         | N/A                      | 1442                      | M-XPL/14.0299              | XPL/20961/19.1606  | <br><br><a href="#">Coal Batch Report 12HM9.pdf</a> | Machine IA Certificate not on record |

|                      |             |      |                 |
|----------------------|-------------|------|-----------------|
| Right Traction Motor | 22KW 250VDC |      | VM 991          |
| Conveyor Motor       | 19kW 950V   | SABS | SABS M787/K481  |
| Socket               | 200A Victor |      | VM1013          |
| Left Emergency Stop  | CT105A      | SABS | SABS MS/R611    |
| Control Station      | CT160       |      | VM1234          |
| Crusher Motor        | 75kW        | SABS | SABS MS787/K154 |
| Pilot Relay          | TRF         | SAEx | SA Ex M/04-044X |
| Plug                 | 200A Victor | SABS | SABS M/V654X    |
| Siren                | HS HC       | SABS | SABS MS/05-217  |
| Main Panel           | F/B/P       | SABS | SABS M/T565     |
| Siren                | HS HC       | SABS | SABS MS787/K737 |
| Main Panel           | F/B/P       | SABS | SABS M/S514     |
| Lights               | E.D.S       | SABS | SABS MS/P468    |

**VM No. Not allowed on new production machines!**

Documents digitally scanned in and linked to table for easy access





# Mining and Surface Certification (Pty) Ltd

## COC/DOC Example

Note: IA certificates are still required for equipment, the COC/DOC alone wont suffice

|  |   |   |                     |
|--|---|---|---------------------|
|  | INSPECTION REPORT FOR<br>FLAMEPROOF ENCLOSURES<br>ACCORDING TO SANS 60079-0 & 1<br>CERTIFICATE OF CONFORMITY  |   | Q11<br>F01          |
|  |   |   | Rev 8               |
|  |   |   |                     |
| JOB No.: J9C 03388   |   | CUSTOMER: Mj119                                       |                     |
| DATE: 25/08/2019   |   | TYPE: C9816 RCU                                       |                     |
| GME / IA No.: SANS 17/11-742   |   | SERIAL No.: J9C 03388/1                               |                     |
| Ex INSPECTORS NAME AND SIGNATURE:<br>D. T. J. B. J.  |   | TEMP RATING 150°C<br>AREA CLASSIFICATION<br>EX d 1 Mb | COMPLY<br>YES<br>NO |
| No   | TASK DESCRIPTION  |   |                     |
| A  | CHECK ALL FLANGES IN ACCORDANCE WITH SECTION 'B' BELOW. THIS INCLUDES FLANGES ON ALL COVERS AND THOSE FOR FIXING SOCKETS OF PLUG-SOCKETS CONNECTORS AND FLANGES FOR FIXING AUXILIARY BOXES. |   |                     |
| B  | CHECK ALL BOLT HOLES IN ACCORDANCE WITH SECTION 'A' AND 'B' BELOW. THIS INCLUDES BOLT HOLES FOR COVERS AND DOORS, FOR FIXING SOCKETS AND AUXILIARY BOXES.                                   |   |                     |
| C  | CHECK ALL OPERATING RODS ARE IN ACCORDANCE WITH SECTION 'C' BELOW.  |   |                     |
| D  | CHECK ALL TERMINALS AND BUSHES IN ACCORDANCE WITH SECTION 'D' BELOW. THIS INCLUDES ALL THE TERMINALS AND BUSHES FOR THE POWER WIRING AS WELL AS THOSE FOR PILOT AND OTHER CIRCUITS.         |   |                     |
| E  | APPLICABLE INSTRUMENTS VALIDATED <input checked="" type="checkbox"/> <input type="checkbox"/>   |   |                     |
| F  | TEMPERATURE, FASTENERS, (BOLTS), GLAND ENTRIES – REFER TO ANNEXURE A  |   |                     |
| NOTE: THIS CERTIFICATE OF CONFORMITY WILL BE NULL AND VOID IF THE EX COMPONENT IS ALTERED OR INTERFERED WITH BY ANY UNAUTHORISED UNTRAINED PERSONNEL |   |   |                     |

|   |                                  |        |  |
|---|----------------------------------|--------|--|
|   | SECTION 'A'<br>ENCLOSURE GENERAL |        | Q11<br>FOA                                   |
|   |                                  |        | REV. 4                                       |
|   |                                  |        |  |
| CHECK   | CORRECT                          | FAULTY | IF FAULTY WHAT WILL BE DONE TO CORRECT FAULT |
| A. With internal components in place can pressure pilling occur   | ✓                                |        |  |
| B. Does the enclosure wall have any cracks or damage  | ✓                                |        |  |
| C. Are there any unblinded holes in the enclosure walls or covers   | ✓                                |        |  |
| D. Are all welds sound  | ✓                                |        |  |
| E. Are the holes in the enclosure walls or covers blank with at least 3mm of metal at the bottom (or one third of the diameter of the hole whichever is more) | ✓                                |        |  |
| F. Are all bolts present on covers and attached parts, and are these bolts undamaged and the correct length   | ✓                                |        |  |
| G. Are the screw threads in tapped holes undamaged  | ✓                                |        |  |
| H. Bolt engagement at least equal or more than bolt diameter.   | ✓                                |        |  |
| I. If the cover is a screwed cover are there at least five full threads that engage and their depth at least 8mm deep   | ✓                                |        |  |
| JOB NUMBER: J9C 03388   |                                  |        |  |
| DATE: 25/8  |                                  |        |  |



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***What is the meaning of the “U” and “X” behind your IA numbers?***

**C.2.2.3** The certificate number could be followed by one of the following identification letters:

- X:** The applicable specific conditions at the letter-symbol X should be ascertained from the contents of the certificate.
- U:** An incomplete piece of explosion-protected apparatus or component (for example, unequipped enclosures, lamp holders, contact blocks, terminals, plugs, reducers, and impregnation materials).

**Are we ensuring compliance w.r.t the installation rules / conditions for equipment IA numbers marked with an “X”? Are we noticing that fully populated enclosures with IA numbers marked with a “U” is actually incomplete and require final certification?**



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## ***New Annex K from the ARP0108 States:***

### **ANNEX K: Validity of IA certificates**

*(normative)*

**K1** All electrical equipment used as Explosion Protected Equipment (EPA) must have an Inspection Authority (IA) certificate.

**K2** The IA certificate for a piece of equipment or a machine or assembly must list the IA certificate numbers and details of the individual EPA components or equipment installed on that equipment, machine or assembly.

**K3 All IA certificates have a validity period which is reflected on the IA certificate.**

**K4** All GME certificates previously numbered V or VM have expired in October 2010 and therefore no new equipment may have any of these numbers displayed on them.





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**K5** For equipment that is still in use and has not been refurbished, overhauled or repaired, the original IA certification is still valid.

**K6** Refurbished includes that the EPA that has been stripped and installed is the original IA certified components / equipment.

**K7** Overhauled/repared means that the EPA has been stripped and reworked (e.g. Resoldering on intrinsic safety boards, skimming of flameproof enclosure surfaces, tapping or threading of entries in EPA enclosures, changing of internal components in EPA equipment, etc.).



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**K8** Overhaul or repair of EPA Equipment or machines must be carried out by an approved mark holder or recertified by an Accredited Test Laboratory (See SANS 10086-3 “The installation. Inspection and maintenance of equipment used in explosive atmospheres”).

**K9** If equipment that has been overhauled or repaired is labelled with the V or VM number, this piece of equipment must be recertified by an accredited test laboratory and labelled with an IA certificate number.

**K10** When equipment is sold by a mine to another mine the mine that is selling the equipment takes the responsibility of Section 21 of the MHSA. According to Section 21, that means that the seller (as the supplier) must ensure that the equipment is safe to use if used as prescribed and that all the EPA equipment has valid certification.



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**K11** Equipment may be inspected by competent personnel, but IA certificates may only be issued by an ATL.

K12 An ATL can only carry out batch testing of equipment for a specific standard / **Ex technique if that ATL has been SANAS accredited to test** and certify to that standard. The batch testing can only be carried out against a valid IA certificate.

K13 If an ATL is carrying out conversion certification i.e. The conversion of overseas certification to a national IA certificate, the ATL must **be SANAS accredited for that Ex technique.**





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**THE END**

**For further information, please do not hesitate to contact me**

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