
COAL MINES TECHNICAL SERVICES, GAS DETECTION RELATED SERVICES FOR MINES RESCUE

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Establishment of CMTS

- Initially established due to perceived **limitations in the technical capabilities** of the New South Wales (NSW) Mines Rescue Service
- **Immediate response could not be guaranteed** from the state government department
- The long term goal for this new division was to develop the required technical skills to provide a high level of **gas analysis and gas detection related technical support** for the mines rescue service and the coal mining industry in general



CMTS - Historical Background

- Self funded business unit **owned by Mines Rescue Pty Ltd**
- Technical manager appointed in **1982** at the **Southern Mines Rescue Station**
- **Formally established in 1983** as a Technical Services Division to service the state of New South Wales and general Australian coal mines
- **Laboratory/ workshop** accreditations also gained in **1983**
- Fully equipped **mobile laboratory** commissioned to enable on site gas analysis and gas detector calibrations
- Achieved **breakeven commercial position** by **1987**
- Formal business plan established in same year
- Registration of the current trading name, **Coal Mines Technical Services (CMTS)** also occurred in **1987**
- Relocated to new premises as **stand-alone business unit** in **1996**



CMTS - Historical Background (continued)

- Internationally recognised **NATA** (National Association of Testing Authority) **accredited laboratory to ISO/IEC 17025**
- Approved **electrical workshop to ISO/IEC 17020 (AS3800)**
- **AS/ NZS ISO 9001:2000** quality system certification
- Accredited **Registered Training Organisation** (under **VETAB**)
- Currently CMTS is the **largest provider of statutory gas detector calibrations** for underground coal mines in **Australia**



CMTS - Technical Services

- **Gas analysis** services (both coal mining and industrial)
- **Interpretation** of gas analysis results during coal mine emergencies
- Supply of computer software tools for gas analysis **interpretation**
- Supply, installation and support of remotely accessed “**SMARTGAS**” micro ultra fast gas chromatographic systems for coal mines
- **Gas detector service/ calibration**
- Sale of **portable and fixed gas detection equipment**
- **Consultancy/ training courses**
- Design of **mobile laboratories** and equipment service vehicles
- Supply of **certified gas calibration mixtures**



Benefits Of In-House Technical Services For Mines Rescue

- The **commercial aspects** of servicing and calibrating gas detection devices/systems on site at underground coal mines
- The **expertise gained** in carrying out this work
- Good understanding of the **strengths and weaknesses of the various monitoring systems** that are currently utilised
- Gas analysis and interpretation of mine atmospheres **when required**
- **External experts may not be readily available** and may not be conversant with local gas monitoring systems
- **Availability of mobile laboratory**
- Direct **communication with mines rescue service** during incidents
- Familiarity with the **mines service structure and systems**
- Familiarity with relevant **mines rescue service guidelines**
- In-house servicing of equipment - **confidence in the gas monitoring equipment** that will be used



ANALYTICAL TOOLS

- Must be equipped with the **appropriate analytical tools**
- Must also have **competent personnel** to operate the equipment
- Normal colliery gas monitoring systems (fixed sensors, infra red analysers) **may not provide adequate and reliable data** to enable informed assessments
- Accurate **determination of low concentrations** of components such as **hydrogen, ethylene and propylene** is required. **Gas chromatograph** should be utilised for this analysis
- Some types of sensors **may produce erroneous readings** in a background of fire gases
- **Limited range** for some sensors
- However, **good quality infra red analysers** can be used for the determination of **methane, carbon monoxide and carbon dioxide**
- There are also **good quality oxygen analysers** (ie **Paramagnetic type**)
- Allowances may have to be made for the **presence of other gases**
- **Mobility of analysers** and advantage (ie **mobile laboratory**)



CMTS Mobile Laboratory



Concluding Comments

The provision for in-house gas analysis and gas detection related services for mines rescue offers significant benefits.

The ability to supply these services in a timely manner is an important consideration when assessing their value.

The broad based knowledge that an in house technical division is able to acquire, is a valuable asset in assessing the data produced from gas monitoring systems.

While external individuals and organisations may have the necessary skills required, and able to assist in the management of post incident gaseous events, they may not always be available when required.

