**KEY ISSUE 6**

**The measures which ought to be considered or investigated for the purpose of avoiding a similar serious accident occurring in the future.**

**RECOMMENDATION 1.**

**Methane Explosion Research Project and Training for Statutory Officials**

**There is an urgent need to conduct a fully public proper research project into Methane Explosions in Underground Coal Mines.**

**As concurrently as possible proper formal Training and Assessment (including the use of scale models) formal training of Existing and potential Underground Statutory Officials into methane explosions.**

**This must include the physical and mental effects on underground coal workers, the Survivability chances of Mine workers including first aid, Self-escape and Aided escape; and the actual physical ventilation infrastructure of the mine.**

One matter that is blatantly obvious is that there is very little understanding involved in;

1. Methane Explosions and the After-Affects by the Site Senior Executives, Mine Managers, Ventilation Officers and Researchers. This seems lower than the Scientists and Mining Manager/Engineers in the early 1800’s. I am speaking about Humphry Davy (inventor of Flame Safety Lamp), Michael Faraday and James Buddle. I have attached several documents from Sir Humphry Davy and Sir Michael Faraday
2. Davy, Faraday and Buddle knew more between them about
* Methane explosions,
* the different way workers died from an explosion,
* transition from Methane to larger coal dust explosion
* Methane explosion confinement
* how vital it was to keep ventilation flowing after an explosion,
* how to build stoppings and other VCD’s with over-pressure “doors”
1. The likely sources of methane ignition in an underground and the required circumstances for its propagation.
2. The Difference between a low speed “Unconfined” Explosion and a high speed “Confined” Explosion in a coal mine.
3. How an “Unconfined” Methane Explosion can change to a “Confined” Methane Explosion, which can then cause a Coal Dust Explosion
4. “Survivability” chances from Methane Explosion for mineworkers, both in the panel where the explosion occurs and the rest of the Mine; and how is directly related to the degree of “Confinement”.
5. Impact of current Ventilation Control Devices on the degree of Confinement of the Methane Explosion Overpressure.
6. Ability of current Ventilation Control Devices to withstand a Methane Explosion, Methane/Dust Explosion, Coal Dust Explosion or Other Overpressure Events; while still staying intact to direct intake ventilation to the areas of the mine where the Methane Explosion occurred.
7. How the Survivability Chances for Mine Workers both in the immediate aftermath of the explosion and either self-escaping or aided escape (including Mines Rescue) is directly related to how Ventilation Control Devices cope with the Over-pressure and remain sufficiently intact to ventilate the mine as it was just prior to the Methane Explosion.

There is an urgent need to conduct a fully public proper research project into Methane Explosions in Underground Coal Mines. As concurrently as possible proper formal Training and Assessment (including the use of scale models) formal training of Existing and potential Underground Statutory Officials into methane explosions. This must include the physical and mental effects on underground coal workers, the Survivability chances of Mine workers including first aid, Self-escape and Aided escape; and the actual physical ventilation infrastructure of the mine.

It is my strong view The Mines Ministers Office, RSHQ, Mines Inspectors, SIMTARS and the UNIVERSITY of QUEENSLAND are not suitable organizations to lead or direct the Research Program.

I will explain my full reasons about the suitability of the current SIMTARS and University facilities and it seems their organizational and operational practices in one of my last Submissions.

As I will spell out below the last time there was a Mining Inquiry that recommended research into methane explosions the report got dealt with by a Cabinet Minute by then Minister Ken Vaughan in 1990.

1. This Minute was only 11 pages long in all, and did not contain the actual over 200 page edited Ministerial Version.
2. That resulted in both the Ministerial Version and the Original Version then being deliberately hidden for 30 years.
3. No copies exit in the State Archives, The Mines Inspectorate (RSHQ), the Ministerial Records or the State Parliamentary Library.
4. SIMTARS at least had the edited Ministerial Version in the 1990’s but refuses to tell me if they still have it.
5. The University of Queensland at one point had both the Original and Ministerial Versions as one of the Mining Professors D Rowland was one of the editors and wrote about it in a Mining Reference Book
6. The QRC after promising to Respond over 2 months ago is silent.

**In my firmly held view, there has been way too much deliberately hidden by various people and Organizations for over 30 years.**

**The only people who were not aware of the Report and what it contained were the ACTUAL COAL MINE WORKERS at the face and their Safety Representatives and the Queensland Public.**

**None of these Organizations has ever so much as suggested the Report existed let alone they have a copy of it. (Many denied the Report even existed).**

**There is an urgent need to get fully transparent and published research and real practical training done; and done as quickly as possible.**

**If the Organizations I have named want to be allowed to participate, that should only be on the condition they do a proper and diligent search of their records relating to the till now secret Coal Mine Explosion Research Project 1990, as if under legal Discovery.**

**There is really very little impediment to them doing so.**

**I would say that most if not all the people involved, are either retired or deceased, so there is no personal blame attached to any current office holders.**

**When I say participate, I mean participate not control, not run nor veto.**

**Concurrently, the construction of proper Training and Assessment facilities in methane explosions. This facility needs to be located in Central Queensland Coal Fields, with the Dysart Mines Rescue Station/facilities being the most logical location.**

**There is only one person in my view equipped to lead the Research that being Mr Mark Parcell.**

**In my opinion he is the most knowledgeable person in the world when it concerns the behavior of a methane explosion in an underground coal mine.**

**In the last 4 to 5 years Mr. Mark Parcell, has built his own scale methane explosion demonstration chamber.**

**Mark wanted to understand for his own curiosity what happens when methane explodes.**

**Not many people are capable to build their very own methane explosion chambers they can use at night, in their front yard in a city suburb.**

<https://www.qldminingcrisis.com.au/2021/04/09/why-isnt-mark-parcell-the-queensland-creator-of-these-scale-model-methane-explosions-on-a-longwall-face-asked-to-give-evidence-at-the-grosvenor-inquiry/>

**DAVY FARADAY BUDDLE COMMENTS METHANE EXPLOSION STOPPINGS**

As an example, Faraday said this in the

**1845** “Report from Messrs. Faraday and Lyell to the Rt. Hon. Sir James Graham, secretary of state for the home department, **on the subject of the explosion at the Haswell Collieries, and on the means of preventing similar accidents”**

***Both in the mines, and at the Inquest, our attention was called to the stoppings and the doors in the workings, upon which the curse of the ventilation depends.***

***At first, we were greatly embarrassed by the circumstances of the large number of deaths from chokedamp.***

***The blowing down of the stoppings by destroying the ventilation of the mine, caused all this chokedamp to be left for a time in the workings; and there is reason to believe from the circumstances, that the men met with a comparatively sudden death.***

***When these are blown away by an explosion, the ventilation is altered and at times such as this disaster, entirely withdrawn.***

***The Manager proposed to have dam doors so arranged that when the stoppings blown down, these could come into play.***

***We do not think that it would be impossible, or even very difficult to carry such a plan into effect in some of the permanent stoppings of the Mine, but, considering that if the stoppings were not blown down, the probable effects of an explosion would be the firing of the whole mine.***

***In conclusion, we cannot but express a hope, that some step may be taken without delay, with a view to better afford a better education to the persons engaged to working in Colleries.***

 ***When attending the late Inquest we were very much struck with the fact that more than half of the pitmen who gave evidence, some of them of great intelligence, and one master wasteman were unable to write, or even to sign their name as witnesses.***

**MODERN UNDERSTANDING**

The Video’s provided by James Munday – Founder and Senior Fire Investigator, Fire Forensics Pty Ltd on methane explosions are a case in point.

TRA.500.025.0009

***Q. Have you obtained a brief video which demonstrates what an initial reaction post methane ignition looks like?***

*A.* ***Yes. This video comes from a series of tests which were carried out at the Fire Research Station in Britain during the late 1980s or early 1990s, when they were looking at various types of explosion involving gaseous fuels, so they used methane, LPG, flammable liquid vapour and various other types of fuels*.**

The leading coal exporting Nation and State in the world has a Ministerial Board of Inquiry that wishes to view a methane explosion.

The leading expert called on behalf of the Mines Inspectorate (RSHQ) produces videos of experiments from Britain in the 1980’s or early 1990’s that often do not even involve methane but use propane.

Propane gas has more stored energy per unit volume and thus releases more heat when the same amount of propane is burned. Propane has a LEL of 2.1% and UEL of 9.5% while Methane’s LEL is 5% and the UEL is 15%.

HOW is that even possible after spending untold tens and tens of millions of dollars on SIMTARS infrastructure, and the no doubt hundreds of research grants for coal mine safety?

In my opinion that is because both the Government and QRC (Coal Owners Association at the time?) in 1990 did not like the Coal Mine Explosion Research Project Findings.

<https://www.qldminingcrisis.com.au/2020/09/01/30-year-qld-govt-secret-leivesley-moura-no-4-explosion-review/>

<https://www.qldminingcrisis.com.au/2021/01/14/department-of-premier-and-cabinet-reply-coal-mine-explosion-research-project-by-minister-vaughan/>

I wrote a letter to the current Mines Minster Andrew Stewart on the 8th of February 2021 about this report hidden under Cabinet In Confidence for 30 years.

**I am asking that the Inquiry recommend as per Minister Stewart’s that the Coal Mines Explosion Research Project, its content both in Original and the still secret edited Ministerial be included in the research project.**

I have attached the full letter, in part it reads

*Minister – The Coal Mine Explosion Research Project. The project completed in 1990 was not widely communicated to the industry.*

***This is illustrated by the absence of any record of the report from the current RSHQ and QRC.***

*Of current industry personnel, only Dr. Cliff was aware of at least one version of the report which he read while working at SIMTARS in the early 1990’s, as there was a Version kept in the SIMTARS Library.*

***SIMTARS have not been able to locate the document Dr Cliff read.***

***The existence of the report was only known by legend and rumour and believed to be under Cabinet Protection for 30 years until 2021. The release of the Cabinet documents from 1990 included a reference to the report but not the actual report.***

***Extensive searches for the report since the 1st of January 2021 were not able to locate a copy of the report in RSHQ or the QRC. This is of course through no fault of current personnel but is direct evidence of the seemingly deliberate loss of such valuable information from a past disaster.***

***It was only with the expiry of the 30-year Cabinet in Confidence and associated 30-year Confidentiality agreements with the Report Authors that I was able to obtain a copy of the report. I was provided with a copy of the original May 1990 Report and what I will call the Ministerial Version.***

***There are substantial changes from the May 1990 to the July 1990 Ministerial Version, particularly in the Findings.***

**On the 9th of April 2021 at 3:57pm (after the Grosvenor Inquiry ceased scheduled public hearings), I received a reply from the Minister which I have attached in full.**

***The board may have regard to a broad range of evidence including information about past events, reviews and inquiries*** *—* ***including the matters you reference in your letter*** *—* ***enabling a comprehensive, cohesive assessment of relevant issues, to make recommendations that can be applied in the contemporary context.***

*I am aware the board has, as part of this assessment, referred to relevant past incidents and inquiries in its proceedings and in the reports it has issued to date. I am aware too, that you have also made submissions to the board about these and other issues.*

*Once the board, having considered all evidence it considers relevant to the risks and hazards relevant to its inquiry, issues its final report and recommendations, it is imperative that industry and all other relevant stakeholders give their undivided attention to those recommendations, and implement any improvements they identify, to avoid future unwanted and devastating incidents impacting mine workers' safety.*