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Subject: Morwell Mine Fire Submission
Date: Tuesday, 11 August 2015 12:33:52 PM
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Title: Mr

First Name: Peter

Surname: Marshall

Organisation represented (if applicable): United Firefighters Union of Australia - Victorian Branch

Email address: p.marshall@ufuvic.asn.au

Home or office phone: [REDACTED]

Mobile: [REDACTED]

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United Firefighters Union Victorian Branch ABN 74 030 569 265

410 Brunswick Street
Fitzroy Victoria 3065
Australia
Email: officeadmin@ufuvic.asn.au
Phone: (03) 9419 8811

Website: www.ufuvic.asn.au
Fax: (03) 9419 9258

UNITED FIREFIGHTERS UNION SUBMISSION TO THE REOPENED HAZELWOOD MINE FIRE INQUIRY

INTRODUCTION

The UFU is providing a submission to the reopened Hazelwood Mine Fire Inquiry regarding carbon monoxide reporting levels and the management of the Hazelwood fire to highlight the lack of consistent protection for the Latrobe Valley community and firefighters and to seek further recommendations.

The UFU wants to understand the rationale for the differing carbon monoxide reporting levels and/or protocols for firefighters and the La Trobe Valley community. In the current HMF I this relates to and/or is reasonably incidental to terms of reference 7, which states:

‘Short, medium and long term measures to improve the health of the Latrobe Valley communities having regard to any health impacts identified by the Board as being associated with the Hazelwood Coal Mine Fire’. (Attachment A)

Similarly the UFU is seeking clarification on actions of senior management and personnel regarding decision making at the fire and efforts to implement previous recommendations.

CONFLICTING CARBON MONOXIDE STANDARDS AND INTERVENTIONS FROM SENIOR GOVERNMENT DEPARTMENTS

On 6 June 2014 and 12 June 2014 the UFU made submissions to the previous HMFI from firefighter L regarding carbon monoxide reporting levels (Attachment B). The statement was from an MFB HAZMAT firefighter who was testing CO levels for the community of Morwell.

Firefighter L was deployed initially from 9 February to 15 February 2014 in the mine and perimeter to test CO levels. The firefighters assigned to this task were initially using a Time Weighted Average (TWA) of 30 ppm as a trigger point for initiating warnings to the community as this is the Safe Work Australia standard.

Later the EPA and the Health Department became involved and the firefighter alleged the trigger point to warrant a warning to the public and advice about the consequences of such levels changed to 70 ppm. It appears that this was despite advice of the MFB and the CFA.

To his understanding concerns were raised with Health Department officials and the police as the triggers exceeded the levels that firefighters were required to wear Breathing Apparatus (BA) in, yet the Health department allowed the public to be exposed to those levels. By doing so it appeared that the public and firefighters may have been exposed to levels of CO far above those normally regarded as safe and hence may have been exposed to danger to their health and well-being. The Safe Work Australia National Occupational Standard is 30ppm TWA, which is measured over 8 hours per day over a 5 day working week.

The document 'Guidance on the Interpretation of Workplace Exposure Standards for Airborne Contaminants (Safe Work Australia April 2013)' (Attachment C) on page 19 sets out short time exposure limits for carbon monoxide:

Carbon monoxide

Table 1 provides guidelines for the control of short term excursions above the 8-hour TWA exposure standard. It is based on the toxicokinetic properties of carbon monoxide. The values should be considered in conjunction with the 8-hour TWA exposure standard for carbon monoxide.

Table 1: Guidelines for the control of short-term excursions for carbon monoxide

Concentration ^(a) (ppm)	Total exposure ^(b) (min)
200	15
100	30
60	60

(a) Short-term excursions should never exceed 400 ppm.
(b) This duration represents the sum of exposures at this level over an 8-hour workday, and *assumes no other exposure to carbon monoxide.*

Firefighter L stated that Hazmat technicians in a Hazmat debrief were told that when they were in the township of Morwell, they were not to discuss any limits or information with the public as to what they were actually measuring. They were told not to give any recommendations or whether anyone should be in that environment or whether to leave or not.

They were approached by the public who asked questions. Firefighter L stated when the levels got dangerous Hazmat technicians advised the public that perhaps it was not the best environment for them to be in and if they were able to, that they should seek alternative accommodation. Although firefighter L was ordered not to discuss it with people, firefighter L believed that the MFB's role is to protect life and property as per the MFB Act 1958 and that he should have been able to provide that information to protect the public's health and safety.

The UFU submitted to the HMF I that this should be investigated, and if it occurred as described by firefighter L, an explanation is needed. The UFU submitted that the trigger point for unsafe levels of CO should be clearly understood and be based on customary standards. If this is not what occurred, the UFU submitted that the inquiry should address this in its recommendations to ensure adequate protection for the public from dangerous exposure to unsafe elevated CO levels.

Further, in its previous submissions, the UFU was concerned that vital information on CO levels prior to 19 February 2014 had not been presented to the inquiry. The UFU also understood that the MFB sent an email to senior officers at Morwell asking for any areas of operational improvement to be given to the Emergency Control Centre and/or Operational Improvement. The UFU submitted to the previous HMF I that it would be of particular use to the Inquiry if the MFB could be required to supply emails from HAZMAT technicians and other MFB officers which highlighted operational concerns. There needs to be a process whereby firefighters can express their concerns about operational matters without censorship. We note that the MFB, CFA, Department of Health and EPA should be able to inform the previous HMF I about these matters and would be expected to have relevant documentation, as well as employees and/or consultants with direct knowledge about this.

The senior management actions have so far not been adequately investigated and adequately dealt with. As is clear from the above submissions, the health of the Latrobe Valley, including firefighters, was in the hands of senior agency personnel, from who the Latrobe Valley was severely let down. These matters are so serious that they must be addressed and rectified for the future health of the Latrobe Valley community. These problems sit behind the technical issues regarding the specifics of the Hazelwood fire and are problems which need to be addressed to ensure the safety of the public at all incidents, whether coal mine fires or other major emergencies.

PROBLEMS WITH CARBON MONOXIDE MANAGEMENT WITHIN THE MINE FIRE

On 20 May 2014 the UFU provided a submission to the previous Hazelwood Mine Fire Inquiry including from firefighter K (Attachment D).

Firefighter K raised concerns regarding:

- carbon monoxide reporting levels
- when to don Breathing Apparatus (BA)
- insufficient communication regarding safe and unsafe carbon monoxide levels; and
- inconsistent testing regime for carbon monoxide.

The UFU is concerned that the fire services did not have a consistent and effective safe system of work in place to effectively deal with carbon monoxide exposure for firefighters during the Hazelwood Mine Fire. This is highlighted in the statement from firefighter K.

Firefighter K had been an MFB operational staff member and Senior Station Officer ('SSO') and has had over 25 years of service in the MFB. Firefighter K had medical testing for carbon monoxide levels where a sensor was placed on his finger.

When he arrived for the first time on 14 February his CO reading was approximately 9%. The testing staff asked how long he had been in the mine, he told them he had just arrived. After discussions they told him the high reading must be due to attending other fires during the week. They put him on oxygen for 30 minutes and then re-tested him. The reading was still over 5% but as he was rostered as deputy divisional commander he was advised that providing he stayed in the Div Com centre and not deploy into the pit itself he should be ok. Firefighter K noted that during that 4 day tour of duty Div Com was evacuated and relocated 3 times due to excessive carbon monoxide and being enveloped in smoke.

Firefighter K stated the original location of the Div Com was supposed to have clean areas where firefighters could rehabilitate and rest to ensure no prolonged exposure to Carbon Monoxide. However firefighter K noted in a lot of circumstances the CO levels were too high in this area, causing the CO monitors to go into alarm, hence the staging areas being relocated on a number of occasions.

As a deputy divisional commander Firefighter K noticed a high proportion of both firefighting and mine staff were getting high readings including around 8% or 9%. A lot of these high readings were coming from people at the start of their shift who hadn't as of yet been down in the mine itself.

Conversely he noticed people who had been in the mine repeatedly were getting low readings. He became concerned about the reliability of the testing regime and requested to be tested on both hands on every finger by all three machines to test the validity of the results. If the results were accurate he should have had about the same reading on each occasion. This did not occur and his personal results ranged from 0% to 14%.

Firefighter K's main concern as the deputy Div Com, was not sending people home with false high readings but rather sending people into the mine with false low readings. He reported his concerns to the incident management team based in Traralgon who sent a CFA manager down the following day shift. He explained what had occurred and was advised it would be looked into and that a different type of testing device would be arranged which would be breathed into, but to his knowledge these never arrived.

Firefighter K reported on the following night shift that the parameters had changed again and a new set of Carbon Monoxide protocols were established. These included not utilising oxygen as a means of lowering readings after high readings as it was discovered the oxygen masked the readings and did not displace the Carbon Monoxide in the blood. The testing staff were also instructed to place a towel over the finger during testing to stop any light affecting readings. Despite these changes, there was still huge variability and people reading greater than 5% after the changed protocols. Also, the practice of using Oxygen to reduce people's readings and then assuming the CO had actually reduced was reinitiated at a later point.

Firefighter K stated there were enormous levels of frustration as changes were made to improve safety including personal CO monitoring devices, escorting of all persons into and out

of the mine, improvements to identification of appliances and other systems, which would then be changed again by subsequent management decisions. These concerns mirror those of Firefighter L.

The UFU previous submission to the HMFJ showed that an AMCOSH report dated 13 February 2014 recorded Occupational Hygienist Robert Golech's attendance at the mine on the 12th February 2014. At this meeting with the Deputy Incident Controller, Operations Officers, the MFB Scientific Officer and paramedics it was agreed that a series of resolutions would be implemented on the evening of the 12th February 2013 (Attachment E). These included the requirement that "Any entry into the mine would require compulsory SCBA use" and that "work around the perimeter of the mine fire where CO levels were low could be undertaken without SCBA".

In the 26 March 2014 "Update from Acting Chief Officer" (Attachment F) Acting Chief Officer Peter Rau claimed that as a result of the 12 February 2014 meeting with AMCOSH that 'all firefighters were immediately instructed from that night to wear breathing apparatus at all times when in the mine as per the recommendations'. That claim is inconsistent with the reports of firefighters and there is no record of any such instruction.

Firefighter K had read correspondence from Acting Chief Officer Peter Rau to all MFB staff on 26 March 2014. Firefighter K saw no instruction for all staff to wear BA at the Hazelwood Mine Fire and was not aware of any time where all firefighters in the mine were wearing BA. Further, firefighter K stated BA duration is approximately 30 minutes. The shifts in the mine were 2 hours. It took approximately 30 minutes to be transported from the staging area into the mine pit itself. Therefore the BA cylinder would have been depleted upon arrival at the appliance, causing a requirement to change a BA cylinder in a hazardous environment and further that a firefighter would then be required to change it a further 2 times in the allocated 2 hour time period in the mine before getting back to the staging area and being relieved.

Firefighter K reported that in any event, the fire services simply didn't have enough BA cylinders or BA's for this.

Firefighter K stated the idea that all firefighters would wear BA lacked operational awareness of what was actually occurring at the time and what could have been achieved in battling this challenging fire. Additionally if it was a requirement for firefighters to wear BA at all times in the mine due to concerns of CO poisoning then surely the same instruction would have needed to have been made to all mine staff who were operating in the same environment. Firefighter K never saw any mine staff wearing BA on any occasion and he was not sure if they were suitably qualified or trained in wearing BA. The most he ever saw were staff wearing particulate filters, P2 masks, designed as a rudimentary form of respiratory protection in regards to airborne particulates, certainly not CO.

Firefighter K stated the fire was difficult enough, but coupled with the complex interagency issues and the health and safety concerns, firefighters were exhausted by the incident.

The UFU noted numerous additional issues regarding carbon monoxide levels and management actions in its original submissions. Due to these problems regarding carbon monoxide management, the problems with carbon monoxide testing and carbon monoxide exposure there needs to be action taken so these problems do not arise again at any fire event including large scale fires such as the Hazelwood mine fire. However the actions required do not purely relate to carbon monoxide but more importantly are needed to respond to the management and management systems that allowed the above problems to occur.

RECOMMENDATIONS ARISING FROM SENIOR MANAGEMENT ACTIONS

The UFU is calling for there to be action taken in regards to carbon monoxide testing and carbon monoxide exposure protocols. But potentially of more importance there must also be

wider action taken. Carbon Monoxide is one chemical to which firefighters and the public can be exposed, and therefore it is not enough to only narrowly learn from this major incident.

Clarification is required from persons from the Health Department and/or other Victorian government departments as to the changing of the carbon monoxide trigger levels from 30 ppm to 70 ppm. The UFU is seeking to know what evidence or rationale was used as a basis to change the carbon monoxide trigger levels from 30 ppm to 70 ppm. The UFU believes copies of fire services warnings in relation to carbon monoxide during the Hazelwood Mine Fire, especially where agencies dramatically changed the carbon monoxide trigger levels should be sourced, made available to the inquiry. Further, all advice of senior personnel from different Government agencies should also be sourced, made available to and considered by the inquiry.

The power to issue warnings is the responsibility of the Incident Controller he or she is legally required to provide information to the community in relation to the fire for the purpose of protecting life and property. Any operational decision regarding changes in the carbon monoxide trigger levels should be made by the Incident Controller and without any influence by bureaucrats. The decision making process and Governmental and agency management structures leading to changed carbon monoxide triggers levels should be made available and considered by the inquiry.

There also needs to be an acceptance by government agencies of the exposures that firefighters and the La Trobe Valley community experienced and assurance that they are protected regarding detrimental health effects from carbon monoxide and other toxic chemicals.

On 28 November 2014 only 8 months after the Hazelwood Mine Fire it was reported in The Age that another mine fire occurred at Loy Yang (Attachment G).

The El Nino that is forecasted for this summer fire season is predicted to correlate with reduced rainfall, warmer temperatures, shift in temperature extremes and increased fire danger in southeast Australia. Based on this and the lack of adequate mine fire protection, the UFU has serious concerns that large scale mine fires could happen again and that lessons have not been learnt regarding preparation for such mine fires and effective measures are not in place to protect the health of the La Trobe Valley community and firefighters regarding carbon monoxide and other toxic chemicals.

FURTHER ISSUES REGARDING ACTIONS TAKEN SINCE THE INITIAL HMF I RECOMMENDATIONS

The previous Hazelwood Mine Fire Inquiry made these recommendations in relation to carbon monoxide levels:

'RECOMMENDATION 7 - REVISE CARBON MONOXIDE LEVELS

- *State review & revise the community carbon monoxide response protocol & the firefighter carbon monoxide response protocol, to:*
- *ensure both protocols are consistent with each other;*
- *ensure both protocols include assessment methods and trigger points for specific responses;*
- *ensure GDF Suez and other essential industry providers are required to adopt and apply the firefighter carbon monoxide protocol; and*
- *inform all firefighters about the dangers of carbon monoxide poisoning, and in particular highlight the increased risks for those with health conditions, and those who are pregnant'.*

In January 2015 Emergency Management Victoria produced a document 'Standard for Managing Significant Carbon Monoxide Emissions'. (Attachment H). It is positive to note this

document that EMV produced in partnership with other government agencies are working towards fixing CO trigger levels for firefighters and the community. However, there still needs to be work on understanding and reconciling the different CO standards for firefighters and the community. The UFU is seeking an explanation regarding the rationale for differing carbon monoxide trigger levels for firefighters and the community.

On page 7 the EMV report comments on occupational exposure standards:

'These Exposure Standards are mandatory under the Victorian *Occupational Health & Safety Regulations 2007*. They establish a maximum upper limit for worker exposure, therefore all reasonably practicable steps must be taken to eliminate or minimise exposure to a level well below the exposure standard.'

The EMV report suggests that it is simply picking up standards from OH&S regulations, however in reality the situation is not so straightforward.

Workers and the general population are treated differently regarding carbon monoxide levels in the EMV document. This is not in accordance with the previous HMF1 recommendation 7, which was to ensure both protocols are consistent with each other. Under the EMV document, the general population is to be governed by exposure standards developed and coordinated by the Environmental Protection Agency in the USA.

Under the EMV document workers are covered by exposure standards purported to come from the Victorian OHS Regulations.¹ Consistency of standards was also a key issue the UFU raised by firefighter L.

Examples of the differences within the current EMV document have been extracted from the

¹ The exposure standards for carbon monoxide for workers are not contained within the *Occupational Health & Safety Regulations 2007* (Vic). The regulations actually refer readers to the Hazardous Substances Information System. However on the Hazardous Substances Information System website it only refers to carbon monoxide and the TWA of 30 ppm over an 8 hour time frame on the summary page. It does not refer to other concentrations of carbon monoxide on the summary page. It does refer to a further document 'Guidance on the Interpretation of Workplace Exposure Standards for Airborne Contaminants (Safe Work Australia April 2013)' (Attachment C) which on page 19 however does explain short time exposure limits for carbon monoxide).

EMV document Tables 1 and 2 (found on EMV document pages 7 - 9) and inserted into the following table:

Time weighted Average (TWA) - including short term excursion levels within an 8 hour period	Firefighter/worker CO levels airborne concentration parts per million (ppm).	Community - AEGL 2 CO levels airborne concentration parts per million (ppm). ²	Community - AEGL 3 CO levels airborne concentration parts per million (ppm). ³
8 hour time weighted average (TWA)	30 ppm	27 ppm	130 ppm
4 hours	N/A	33 ppm	150 ppm
1 hour	60 ppm	83 ppm	330 ppm
30 min	100 ppm	150 ppm	600 ppm
15 min	200 ppm	N/A	N/A
10 min	N/A	420 ppm	1700 ppm

This demonstrates strikingly inconsistent carbon monoxide levels and/or protocols between firefighters and the general community.

That a common carbon monoxide standard has not been adopted, underlines the importance of rectifying the management problems referred to throughout these submissions. The EMV document appears to have adopted two different carbon monoxide standards from different authorities. The UFU is seeking an explanation and to understand the rationale for the differing CO standards for firefighters and the community.

In regards to effectively handling a major emergency with potentially significant health impacts for a large population, including firefighters, we submit and recommend that the management

² AEGL-2 is the airborne concentration (expressed as ppm or mg/m³) of a substance above which it is predicted that the general population, including susceptible individuals, could experience irreversible or other serious, long-lasting adverse health effects. - taken from <http://www.epa.gov/oppt/aegl/pubs/define.htm> or an impaired ability to escape..

³ AEGL-3 is the airborne concentration (expressed as ppm or mg/m³) of a substance above which it is predicted that the general population, including susceptible individuals, could experience life-threatening health effects or death'. - taken from <http://www.epa.gov/oppt/aegl/pubs/define.htm>.

and resources of the Victorian Government agencies must prepare policies, procedures and standards based on evidence, experience, sound rationale and with the input of qualified technical and operational experts.

SUMMARY

The UFU is seeking an explanation regarding the rationale for differing carbon monoxide trigger levels for firefighters and the community. The UFU notes recommendation 7 of the previous HMTI called for consistent protocols for Carbon Monoxide trigger levels. The UFU is also seeking an explanation regarding the response to certain carbon monoxide trigger points and how such responses will ensure that firefighters and the community are appropriately protected. The government departments, bureaucrat(s) and management systems responsible for the health risks arising from the management of the Hazelwood fire must be reviewed and rectified. Further, the management of these types of incidents must be reviewed and appropriate actions taken to avoid any ongoing health risks at future emergencies, whether this relates to Carbon Monoxide, any other chemicals, or any other hazards. The fire services, the Department of Health, the EPA and other government agencies must be able to respond quickly to provide an evidence based response to ensure the highest level of health protection is afforded to firefighters and the La Trobe Valley Community.