Audit Report – CONFIDENTIAL – Fire Services Commissioner

Recommendations 15th, 16th, 17th February 2014 Hazelwood and Morwell Fires

Situation – Latrobe Valley Coal Mine Fire/Incident.

Overview

Hazelwood and Yallourn coal fired power station open cut mines have been or are subjected to fire attack. These mines feed the power stations with coal to produce electricity to the State of Victoria and transmission links to other States. The infrastructure is critical to the State and the fire is having direct impacts on potential energy production and air quality and the environment.

The protection and suppression mission is on a world class scale. The level and duration of the effort requires adapting existing principles and writing a new management and operational adaptability capacity as the incident progresses. Impacts on the community require engagement on a scale otherwise unheard of. The fire is directly impacting on over eight thousand local people, especially emergency services personnel, and indirectly, the potential to impact on 2.5 million Victorians.

Figure 1 – The Hazelwood coal mine (Image courtesy of Google Earth)

Audit Observations – context

The evening of the 15th of February 2014 saw the northern, eastern, and southern batters burning over an area in excess of 3 kilometres with over 154 ha on the floor of the mine engulfed over much of that area. Fire crews were making headway and were protecting

critical infrastructure of the mine to ensure ongoing electrical production was supported and protected.

During the night shift, the wind changed direction and due to the dynamics of the open cut, visibility deteriorated and carbon monoxide (CO) levels increased significantly. The view from the top of the open cut showed almost all of the western, southern and northern upper and lower batters glowing red, large blowholes of glowing gas swirling first in one direction and then a few moments later in another, no two following a discernable pattern.

The change of wind direction meant that assets, the energy bricks facility and the DivComm were at risk from either fire or CO and smoke impacts. At some stages, the flashing lights of fire vehicles were visible in the distance and moments later, these appliances were lost from view for some time. The stars and clouds were obscured at times by smoke issuing from the mine. Communications and welfare checks were made and where fire crews were impacted upon, pre-arranged contingencies were put into action seamlessly. The strength and directional variability of the wind meant that the previously hard won ground was lost and the fire spread to new areas and batters with fresh intensity.

Administrative observations and treatments

This initial audit was conducted to assess what occupational health and safety processes are in place at the Latrobe Valley Coal Mine Fires. During the audit process a number of discussions were held and improvement opportunities were identified by many of the auditees which were taken up and implemented. A culture of support, interest and willingness to assist was prevalent.

This audit report is an ‘exception’ report. There were many areas subjected to audit and were found to be compliant, however the audit report deals with the matters requiring treatment. Where issues have been identified as having a potential impact they are reported for information, even where in many instances, unless indicated otherwise, the identified issues have had treatments applied to be compliant.

The follow-up audits will identify how well the processes are delivering the safety enhancements recommended and safety mission objectives.

1. Audit of Health Management plans showed two separate versions in use and no process to identify those that were sent to the State Control Centre for comment and those that returned on the database and their status. Oversight of version control of all operational documents to ensure the correct version is in use. A process to show identifiers including version number, date and other details of issue for each page. This has been corrected and is now compliant as of 16th February 2014.

2. Each shift to state the mission priority – “Safety for all then suppression”. The mission statement shall include clear safety statement/s. This is necessary to reinforce the criticality and importance placed on firefighter, mines worker and public safety. I.e. SMEACCS to refer to zero harm, zero incidents as a primary objective for each and every shift. Results will be reported on at all levels of the operation. Briefings and debriefings are to recap OH&S treatments from earlier incidents and lessons learned to be included in daily briefings. In part compliant.

3. Enhance planning for identifying and treating risks that may change or alter during the shift or exposure –

   Risks are to be identified and control statements or escape or mitigation strategies clearly listed. – Safe fire-fighters, every way, every day.

   I observed this is being done at the higher levels but needs to have outcomes recorded and capable of being validated at DivComm, Sector, Strike team, and importantly at crew level.
   (In questioning some crews about wind changes at night reducing visibility, they did not know what impacts could occur and this resulted in a “Mayday” incident, albeit with no injuries or damage.)(Refer to comments on local knowledge)

4. Clarifying what the mission actually is. – In the early phases of the operation the emphasis was on fire suppression however, it was only after the Regional Controller directed the incident was to be primarily Hazmat with fire suppression to follow was the focus clarified and accurately directed. This then changed the way business was conducted. This was a very positive step.

5. As of the 15th of February, a matrix of recommended CO exposure levels were received which enabled treatments to be identified. This table required further information and inputs from EPA, Health and DHS to provide information to the broader community to understand what these levels mean to different classes of people.

   When this critical health effects information was available it enabled the incident controller to better advise the escalation or de-escalation of warnings to the public to enable the public to have the best information to make choices about how the exposure levels applied to them and what treatments to take. This needs to be further developed and supported as the incident moves into the next and subsequent phases.

6. Consideration to be given for Health Department together with other agencies (EPA, Ambulance Victoria, Local Government etc.) to assist with the formation of template ‘Respiratory Health Plans’ for ‘at risk’ persons. The format may be similar to asthma management plans and follows the well proven and successful bushfire plans now accepted country wide as an advance awareness and management tool for bushfires. The respiratory management plan template shall provide guidance for short and protracted respiratory incidents and what to do when certain levels are reported; who to contact etc. This may be as simple as go for a bus ride, postpone school sports, seek advice from this web page, through to evacuate etc. The community would expect this from its responsible agencies. This was observed to be underway during the audit.

7. Incident shift plans and health management plans to have clear direction and responsibilities spelled out for crew leaders and crew members’ responsibilities and accountability. In part compliant, however to be followed up. Copies of these plans to be available to each appliance to ensure all persons on the fire ground are the most up to date.

Operational considerations of Health and safety

8. In the initial stages of the incident, confusion between some members existed because responders were using sectors and locations identified by firefighter terminology to describe sectors and not the common mine names. Recommend - use mine terminology to set up sectors and control points to keep all personnel on the same page and enhance safety. Later observation as of Night shift 15/16 Feb this was adopted and was audited - works well; no further action.

9. Develop and implement procedure for donning CABA in a potentially contaminated or contaminated environment. No instructions exist and members are directed to don CABA without instructions as how to do so. This is not presently in place.

10. Implement respiratory and eye protection regime for all crews from when they enter the warm zone (depending on atmospheric conditions, the donning may be before they get to the warm or hot zone) to seal vehicle cabin and recirculate cabin air. If leaving the cabin or high levels of CO/Dust Smoke encountered, wear respiratory PPE and eye protection or CABA if warranted. Note: ISP for 16/2/14, this is now in place. This will need to be audited to ensure compliance.

11. Incident report follow ups; what are the corrective actions recommended and how have they been implemented so far. No evidence that this is being done, CFA Salmon Cards being used by MFB with a slow uptake at this stage. Over 4 days of the audit, has improved considerably. Needs further attention.

12. The haemoglobin CO monitoring instruments are showing various levels of CO and have been subject to some criticism with rumours of multiple dissimilar readings from two or more instruments from a single source. Recommend both pre use calibration and post use calibration is undertaken to ensure accuracy. Ambulance Victoria to obtain blood samples from random members then cross referenced as a check to validate the accuracy of the haemoglobin CO meters. This is a priority. Adjust monitoring and calibration protocol as required.

13. Crews/persons self-presenting to hospital after their shifts be instructed to notify the IMT and DivComm ASAP so that the incidents are recorded, investigated and appropriate actions are able to be taken to mitigate exposures and allow follow ups. This will need to take into consideration the health of members reporting for subsequent shifts and their tasking to reflect safe work exposures.

14. Ensure air tests in the town where responders are staying are taken into consideration when considering cumulative levels of CO and respiratory dusts. Whilst CO levels will be measured when next on shift there are other factors not taken into consideration if the members are released or are deployed to other fires where monitoring is not being conducted.

15. Welfare - check with responders after they have returned home to check for general welfare and health concerns. I am told this is done however no one could show any evidence of when, where and the recording of results and subsequent follow up if issues are identified and actions are required. There needs to be a reporting mechanism to feedback these results to the health unit to enable proper monitoring and preventative strategies for the future.

Ensure Groups, stations, shifts, brigades and members are informed of potential medical impacts before being deployed to ensure health risks exposures are eliminated. This information is available but there was no evidence of this information is being passed on to members, groups and the like.

16. Medical readings of pre and post exposure CO concentration results from Ambulance Victoria need to be tracked into the health unit and for the scientific officer to interpret. I saw evidence of the recording of the atmospheric readings but no downstream assessment of results, nor consideration of existing results or trends etc.

    Critically, we need to evaluate these results from all areas to determine and advise whether the exposure levels are too low or too high. Without an assessment of these results, we are potentially placing our people at risk. Recommend that Dr Michael Sargent oversee this action.

17. Implement safety officers on the fire ground earlier to ensure compliance with OPS, Hazmat & PPE to reduce impacts. This has been done as of day shift 17th February but should have been in place from day one. The effectiveness of this action and general feedback will need to audit to ensure compliance. These persons must be able to direct all responders to comply and report non-compliances for follow up by their respective organisations. – specific observations-

    a. Observation of a bus leaving the site with members on board without physically inspecting members to ensure health wrist bands were worn.
    b. CFA has a 48 hour requirement to wear the wrist bands, MFB and Mines personnel have a 24 Hour requirement – there needs to be a sound reason for one or the other – not both.
    c. CFA members were issued with 24 hour arm bands in spite of the 48 hour requirement.
    d. Members in the hot zones in smoke not wearing their P2 respirators or eye protection;
    e. Members wearing cloth caps in the hot zones operating charged lines near couplings in contravention of SOP and Chief's Standing Orders.
    f. Members not following instructions by having a mines guide on night shift when travelling from the floor of the mine to the DivComm.

    The above matters have been reported and noted with field safety officers tasked to ensure compliance. Follow up on actions required.

18. Safety adviser to get community CO & smoke readings on a continual basis to determine potential exposure for on and off duty crews. This information to be a part of debriefing information for outgoing crews. It was noted that a day shift pumper crew had zero CO levels for 7 hours and only 1 spike of 14 PPM CO for up to 15 minutes over the entire time of their exposure – other exposures contrast significantly with crews exposed to CO levels requiring warm protective action exposure management requirements for over half of their shift.

19. Involve a CFA member into safety division, (a person who is familiar with CFA procedures) to assist MFB crews to streamline processes and assist with

compliance. The safety advisor/division is working and has identified and delivered significant safety enhancements.

20. Bring local knowledge into Divcomm and ICC at the earliest opportunities and ongoing to maintain local content. This is especially important at the mine, to ensure local contacts; knowledge, relationships and capability. This will ensure health concerns are identified and dealt with early using appropriate local resources. ***Note*** it was a local Operations Officer that directed the DivComm be moved on the morning of the 16th of February after being subjected to high levels of CO and respiratory particulates. The DivComm was relocated to safe space. This knowledge and keen decision making was critical in the timely (but belated) relocation of crews reducing potential high levels of exposure.

21. Ensure as soon as possible that detailed chemical analysis and gas tests are conducted from all areas of the mine and results from those tests are known. From the 7th, to 17th February we are still awaiting detailed results analysis. It is noted that analysis is especially specialised and cannot be done on the spot. Note: Whilst the possible gases/agents may include some level 1 carcinogen product/s, the concentration ratio in air could be small. However, to establish the proper protection protocols early intervention is critical. There may be unknown chemicals, odours etc. and without definitive testing we cannot say what is or is not a potential acute or chronic health exposure issue. This knowledge will simplify medical treatments, cross sensitivities or unexpected symptoms. Dr Michael Sargent to be included in the circulation of the results.

22. MFB/CFA team integration working brilliantly.

23. Explore possibility of CO filter canister use for all mines access in CO positive reading exposures as a matter of priority.

It is noted and remarked that this incident is a large scale and possibly a world's first incident due to the specific risks, community impacts, large scale and extended duration. I was invited into meetings at Regional and Incident management levels. I observed processes being evaluated as to the direct suitability and recommendations discussed for enhancement at all levels and across all areas of incident control, safety, planning, operations, logistics, resources and public information. The audit was specific to the terms of reference. There was no information not made immediately available, withheld, or omitted.

I invited any comments on the conduct of the audit to be directed to myself or subsequently directly to the office of the Fire Services Commissioner for clarification or improvement purposes. All comments received by me directly supported the way the audit was conducted.

Frank Zeigler – Auditor – Audit Assessment Hazelwood/Morwell Hazmat incident

18th February 2014 – ***CONFIDENTIAL IN CONFIDENCE***