



HAZCON Pty Ltd

Health, Safety & Environmental Consultants

Report To:
Blake Dawson

HEALTH AND SAFETY REVIEW – CFA FISKVILLE TRAINING COLLEGE

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1. EXECUTIVE SUMMARY

[REDACTED] representing the CFA to provide legal advice, engaged HAZCON Pty Ltd to conduct a health and safety review of the CFA training ground located at Fiskville, Victoria.

A site visit and a follow-up visit to CFA headquarters were conducted to identify any risks to the health and safety of personnel visiting or working at Fiskville.

Based on observations, review of records and procedures as well as discussions with personnel, it is my opinion that there are no significant risks to the health and safety of people working at the site and those attending the site either as trainees or visitors.

There are areas where health and safety can be enhanced and these are listed in the recommendation below in priority order.

1. Risk assessments for LPG, diesel and unleaded petrol used on site should be conducted and address all aspects of storage and handling including delivery, maintenance of pipe work etc.
2. The ripping saw guarding to be addressed.
3. The general maintenance workshop floor should be sealed especially in the area where chemicals are stored.
4. Storage of chemicals in the grounds workshop to be improved and poisons secured in cabinets.
5. Labelling of chemical spray containers should be implemented.
6. Speed restrictions signs should be erected where appropriate and induction paperwork to reflect the same.
7. Water treatment actions should be recorded and the effectiveness of them to be retained.
8. The emergency shower pipe work to be lagged and the rough surface repaired.
9. Introduce housekeeping standards for the workshops and the fire extinguisher fill room.
10. Determine whether the glass in the fire attack buildings is at risk of shattering. VUT researchers may be able to provide guidance.
11. The gas cylinder stands at the rear of the maintenance workshop to be repaired.
12. Review water quality criterion so that there is no increase in health risks but also is achievable especially those criterion where there is limited controls.

13. One senior person on site to be assigned accountability for OH&S.
14. Remove the bus near the air strip if its value cannot be justified.
15. Limit stacking of old vehicles to two high.



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2. INTRODUCTION

[REDACTED] of Blake Dawson has requested on behalf of the CFA for HAZCON to undertake a Health and Safety Review at the CFA's Fiskville Training Ground to identify any potential health and safety risks to individuals utilising or visiting the site. The review is to be conducted as **confidential and subject to legal professional privilege**.

3. SCOPE

The following scope of work will be addressed as part of the project:

- A site visit to review the potential for health and safety risks posed by the current systems and practices involving the use and handling of chemicals and will encompass
 - Storage and handling of fuels and foams
 - Maintenance practices of critical equipment
 - Appropriateness of risk assessments for the chemicals used and the tasks undertaken utilising them
 - The potential for known disposal sites to present uncontrolled hazards
 - The rigour and relevance of training and documentation with respect to managing chemicals
- Interviews with various staff members to assess the level of chemical storage and handling knowledge and the degree to which the relevant policies and procedures have been implemented on site;
 - Photographic evidence will be taken where it is deemed to add value and clarity to the findings;
- Prepare a preliminary report, outlining recommendations where appropriate due Monday 9th January.

4. OBSERVATIONS

The review was conducted on 4th January, during the Christmas/New Year break and no scheduled training was planned, therefore the observations could only be made on a static site and from limited interviews with site operational personnel. [REDACTED] were available and [REDACTED] acted as our site guide for the review.

Fiskville is a large fire and rescue training college primarily used by CFA trainees and personnel but the facilities are also used by other emergency service organisations for training purposes. There is also a large corrugated iron clad fire test facility owned by Victoria University of Technology (VUT) which is part of the Centre for Environmental Safety and Risk Engineering, CESARE. It is managed by VUT and was not considered as part of this review.

Grounds and Airstrip

The airstrip has been closed due to issues with the size of the aggregate used to cover it. Some pilots have expressed concerns that the larger aggregate has the potential to chip the propeller blades which will result in costly repairs. The CFA are working on a solution.

A small locked shed is used to house aviation fuel. It has a concrete bund sufficient to capture a spill from a 200L drum.

The site where the drums of contaminated product had been exhumed, in the mid 1990's and in circa 2001, is situated amongst a grove of eucalyptus trees near the airstrip. Sample points have

been drilled into the ground around the area to allow for ground water contamination monitoring. Fencing restricts access to the airstrip and the eucalyptus grove. The grove is not a place that would be accessed for any training purposes therefore there is not expected to be any exposure to personnel of unknown contaminants.

An old bus and helicopter are in the area near the airstrip. The bus would appear to be at the end of its life and accessing it would present an unnecessary risk for any training scenario. Unless there is a convincing argument as to its ongoing value, it should be disposed.

Maintenance Workshops

There are two maintenance workshops on the site. One is primarily for grounds maintenance staff and the other is for general maintenance as well as for fabrication of structures used in some of the fire simulations.

The ground maintenance workshop has a range of small package dangerous goods and hazardous substances and agricultural chemicals. The storage of these is not well executed nor is the labelling of containers with agricultural chemical blends. Poisons such as Pindone should be locked in a secure cabinet. **Refer Photograph 1** The mixed herbicides should have a label on the container to prevent inadvertent use or exposure. **Refer Photograph 2**

The general maintenance workshop's housekeeping should be addressed as there are a large number of chemical containers that are poorly stored. The floor is earth/crushed rock and is unsuitable for storing chemicals as a leak will contaminate the soil. **Refer Photograph 3** An impervious floor should be in place where chemicals are stored.

The workshop also has several woodworking pieces of plant. One of them, a ripping saw has no guarding. It should have as minimum, guards for parts below the bench, a riving knife at the back of the saw, above the bench, to prevent the cut timber closing in on the blade and a guard covering the saw blade above the table when it is adjusted to its full height. Other saws and plant were guarded and the guarding appeared to operate as required.

There are several LPG cylinders at the rear of the workshop. The concrete pads are deteriorating and one cylinder is not stored on a stable surface. This should be addressed.

Buildings

A full tour of the accommodation and administrative buildings on site was not conducted, however, from the areas sighted, there did not appear to be any immediate or obvious health and safety hazards. The Fiskville site contains asbestos containing materials (ACM) mainly in the form of vinyl tiles and asbestos cement sheet used in wet areas as well as in eaves and partitions in some of the older buildings. Some ACM has been removed such as the fire doors in the three storey search and rescue facility. A register of ACM is held by the facilities group and is referred to when any works are planned that may disturb asbestos.

There are numerous signs warning people of the potential for snakes. This is obviously not within the CFA's capacity to control but they have provided what warning they can.

PAD – Fire Fighting Training Ground

It is acknowledged that any training in fire fighting/rescue has an element of risk as the participants have to be exposed to as realistic a scenario as possible to ensure they develop the knowledge and

skills required to act when actual fire fighting has to be done. Radiant heat, thermal stress, slips trips and falls as well as manual handling hazards all exist during the training program.

The Practical and Drill (PAD) areas were not in use on the day of the visit. The PAD has a variety of props used for training drills by trainees and uses either LPG or diesel or unleaded petrol to simulate fire scenarios. LPG is the primary fuel for the training and is used approximately on 70% of the drills. The main reason for its selection is the ease by which it can be turned off if required and it burns without smoke and minimal chemical residue or combustion residue. The liquid fuels are more difficult to control and are used mainly to create smoky fires as well as fire simulations on horizontal surfaces where liquid fuels flow. ULP is the preferred liquid fuel as it leaves little residue unlike diesel, although diesel is used in some instances as it is a typical fuel source that CFA personnel will encounter in the field.

Prior to any training exercise, the props and any ancillary equipment are checked for correct operation by either the instructors or the PAD co-ordinator. Trainees also check their own equipment prior to exercises.

All personnel involved in fire attack or search and rescue in smoke filled structures wear SCBA (Self Contained Breathing Apparatus) which ensures that participants are not exposed to combustion products from any of the fuels and materials used in the simulation. SCBA is maintained regularly and evidence was provided to support this.

There are individual procedures developed for each training exercise that is carried out on the site. These are comprehensive and safety is addressed in both the briefing section and additional safety considerations and emergency response in another section of the procedure.

In addition, general risk assessments for the three training areas have been developed. Two were last reviewed in 2005 and another in 2010. A recent incident involving a trainee from MFB falling over a railing at the double storey fire attack building has resulted in a review of the risk assessment and additional information added to the briefing procedure. The older risk assessments should be reviewed in light of any incident data captured over the past 5 years to ensure they are relevant.

Fire fighting training is performed under the instruction of qualified trainers as well as a Safety Officer (Orange Helmet) and the PAD co-ordinator who are in contact via two way radios. There are a number of reasons why an exercise can be stopped and any of the above personnel can cease the exercise. The PAD co-ordinator, located in the control booth, has access to emergency shut off switches for all fuels sources. There are back up solenoids for the fuel delivery so if one fails, the other will activate.

Emergency eye wash and showers were located at either end of the fire fighting area. One emergency shower is poorly maintained **Refer Photograph 4** and pipe work is exposed to the elements. The pipe work should be lagged with insulation and the area beneath the shower levelled.

PAD buildings

There are a number of buildings in which training simulations or scenarios are conducted. Some of the buildings such as the fish and chip shop and flash over room use LPG to create fire and heat and an operator in a protected booth monitors the exercise and can modify the flame as part of the exercise.

All training is conducted under supervision by instructors who not only assess the performance of the trainees but are ready to address any safety issues if they arise.

Other buildings are used for fire investigation training and others are for fire response and rescue are supplied by smoke and heat coming from separate cribs attached to the structure. The only concern is whether the glass sliding doors in the double storey and single storey fire attack building is shatter proof if the heat profile gets too high. **Refer Photograph 5** The glass does not appear to be fire resistant and therefore may fail catastrophically during an exercise.

The PAD buildings are inspected by maintenance and any signs of deterioration in integrity are referred to structural engineers to ensure that the buildings are still safe to continue using.

Incident Data

A review of incidents dating back to 2005 showed that there were few incidents involving exposure to fuels or resulting in burns from fire fighting activities. Most of the incidents were musculo-skeletal disorders, dehydration or slips and falls.

Not only were incidents reported but also hazards as well as near misses.

Roadways

The road access to the site is good however there are no traffic speed signs other than the 50km sign when entering the main drive or exiting on the same road. There is a tacit agreement that speeds are limited to 30km although there is no evidence of this being reinforced by written policies or signage around the site.

There is likely to be a number of people travelling by foot as well as in small carts and other vehicles and the potential for contact should be minimised by erecting speed signage in obvious locations.

Water Quality

The water quality at the site has been investigated over a number of years. Water for fire fighting is generally drawn from town supply into a holding tank (Pit) of 270,000l however on high usage days, water is drawn from Dam 2 to top up the "Pit". Water is also drawn from Dam 2 for the Safety Line, operated by a separate pumping system, which is a back up for when training involves an advance attack on LPG or flammable liquids fires and leaks.

Contaminated fire fighting water from exercises runs into a triple interceptor pit **Refer Photograph 6** and the water then passes into Dam 1 **Refer Photograph 7** which is essentially a settling pond but is also aerated to hasten the degradation of organic residues. Water from Dam 1 then passes through to Dam 2

The CFA have adopted a Fire Fighting Water Management Plan that describes the water quality limits of water used for fire fighting purposes which have been established at the level of class A treated sewerage with a modification to the E.coli limit. A review of the previous two test results for Dam 2 was undertaken and it was noted that some of the criteria were exceeded, such as BOD (Biological Oxygen Demand) and occasionally E.coli. The results were discussed with [REDACTED] and his response that on days where E.coli results are high, he contacts Ecolab for guidance. In the past he has added "pool chlorine" to disinfect the water. Records of these corrective actions and subsequent retesting of treated water should be maintained to ensure that response was effective. This would also reassure trainees, if exposed to fire water that it is of an acceptable standard. The appropriateness of the low BOD standard should be reviewed as it is unlikely that this figure will be achieved based on the waste water inflows and historical data. If a higher criterion does not represent a greater risk to human health it should be altered in consultation with Central Highlands Water.

Chemical Management

CFA headquarters was visited on 5th January to understand the procedures for chemical management. There is a procurement process that endeavours to ensure that only approved chemicals are purchased. A software chemical management system has been developed and is maintained both by in-house personnel and external providers. A chemical register is maintained for all sites including Fiskville. The Fiskville site is divided into a range of functional or administrative areas and the list of chemicals at each area is available. Up to date MSDS's are stored on the system and where a chemical is regarded as hazardous or dangerous goods, a risk assessment is conducted. The risk assessments have been performed by an external consultant in consultation with other personnel. They are of a generic nature and for many common chemicals and tasks are appropriate. There are some risk assessments that are too generic especially for the activities conducted at Fiskville.

For example, the risk assessment for flammable gases is focused around acetylene and small LPG cylinders. The situation at Fiskville is vastly different as there are several large 7500L LPG above ground tanks, multiple lines of gas supplied across the PAD area, control systems, filling points and outlets in many props. Similarly, the diesel and ULP risk assessment is too generic. The filling of the bulk fuel tanks, the delivery pipe work to the PAD fire fighting areas, the prevention of fires from static electricity and the controls to ensure spills are prevented should be addressed, in addition to general exposure issues.

Audits of the fuel systems are undertaken by AMCAH. The reports are in depth and offer a range of recommendations to address any issues identified. A recent audit was conducted and corrective works completed 6 months later by AMCAH.

Site Management

The overall site management is split between two personnel. [REDACTED] is new to the organisation and is responsible for facilities and support services whereas [REDACTED] is responsible for training delivery. This split of roles for a large and dynamic site dilutes the OH&S ownership across the site. One person should be made accountable for all health and safety.

Other

There are vehicle training courses that are fenced off. It is not within the experience of the consultant to make a valid comment on the relevant safety of these areas.

The urban search and rescue area which is a collection of building rubble was previously a haven for snakes. The snakes were removed and a snake proof fence has been installed.

The dry chemical fire extinguisher filling room is very dusty even though exhaust ventilation is in place. The BE powder primarily (sodium bicarbonate) is regarded as an irritant dust and exposure to it through improvements in ventilation and housekeeping could be greatly reduced.

The foam additive used for chemical fires is Tridol 3-6 ATF which is an all purpose foam for use on both alcohol and hydrocarbon based fires. Previous alcohol resistant foams contained perfluorooctyl sulfonate that is persistent in the environment. The additive is supplied at 3-6% into fire water at the point of discharge to create a suffocating layer of foam over a liquid fire. There are a number of combustion products for the foam however they are similar to other combustion products from other materials and thus present no additional risks that common combustible materials pose.

Old vehicle wrecks that are used for training drills have fuel tanks and any other part that may explode if exposed to heat removed. The burnt out vehicles are stacked in a separate area. The site should consider whether stacking these vehicles three high is appropriate.

A confined space training area is available and access is done under a confined space permit system.

5. INTERVIEWS WITH STAFF AND RELEVANT PERSONNEL

Interviews and discussions were conducted over two days with personnel at Fiskville and at CFA Headquarters in East Burwood.

Name	Position

6. CONCLUSIONS

The general health and safety at Fiskville does not present an unacceptable risk to people attending the site once the purpose and activities of the training college is taken into account. Many of the training scenarios have elements of risk and are intended to provide a controlled but realistic simulation to what the trainees will encounter in real life situations.

Chemical management in the PAD area is well managed and the limited number of chemicals used ensures that there is control over what exposure personnel may encounter during training exercises.

There are some areas that should be addressed to ensure the health and safety of personnel who are permanently stationed at the site.

7. RECOMMENDATIONS

1. Risk assessments for LPG, diesel and unleaded petrol used on site should be conducted and address all aspects of storage and handling including delivery, maintenance of pipe work etc.
2. The ripping saw guarding to be addressed.
3. The general maintenance workshop floor should be sealed especially in the area where chemicals are stored.

4. Storage of chemicals in the grounds workshop to be improved and poisons secured in cabinets.
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11. The gas cylinder stands at the rear of the maintenance workshop to be repaired.
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8. APPENDICES

APPENDIX 1 – PHOTOGRAPHS



Photograph 1 Unsecured poison



Photograph 2 Unmarked herbicide mixture



Photograph 3 Inappropriate surface for storing chemicals



Photograph 4 Unlagged pipework and rough surface



Photograph 5 Glass door on single storey fire attack building



Photograph 6 Triple interceptor pit for fire water run-off



Photograph 7 Dam 1