

Hello

Attached is two documents, my submission to the bush fire inquiry and a diary of my experiences during our 2019 - 2020 bush fires.

The first, the submission is suitable for publication and the diary is of a more personal nature and not written in a style for publication, but if the inquiry wants to publish I have no serious concerns or objections. I consent to the publication of both documents.

I am making this submission as a **private citizen of NSW who is also a long serving volunteer member of the NSW RFS.**

This submission is not on behalf of any organisation.

I have cc this email to my local members of Parliament and my local brigade Captain and Senior Deputy as a courtesy only, they have not had any input into this submission, it is entirely my own work.

Thank You and please acknowledge receiving this emailed submission.

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Submission to Fire inquiry

Executive summary

The fires in 2019 and 2020 were the largest and longest duration fires the NSW Rural Fire Service has experienced since it was founded and have consumed considerable fire fighting resources. These fires injured many fire fighters (including the author of this submission) and killed several fire fighters, plus traumatised hundreds of fire fighters. There are also long term impacts on the health of fire fighters. The impact of many of these issues could be reduced or addressed by changes to Rural Fire Service procedures and equipment.

The effect of climate change on these fires was apparent by their intensity and duration. The fires started much earlier than normal, in a much drier bush than normal. Fires like the Black Range Fire in Southern NSW started by lightning in a remote area and burning too intense to control in Wet Sclerophyll forest in late November. This fire behaviour is exceptional for this early in the season. The fires did not slow up in the early evening as we had previously experienced and even burnt intensely in hazard reduced areas.

These recent fires were similar, but much more widespread and intense compared to the 2003 Canberra fires; a very dramatic change in fire behaviour over 17 years. Therefore, the NSW RFS needs to rapidly modernise its equipment along with its Command, Control and Communication (C3) systems to cope with the upcoming increasing severity of bushfires. Fires are becoming more dangerous and intense as the Australian climate warms and the bush dries out to hazardous levels.

Background

The author of this submission has been a member of the NSW Rural Fire Service for over 20 years. Initially 2 years in Woodford Brigade in the Blue Mountains from 1979 to 1980 and more recently a member of Stony Creek Brigade (Carwoola Brigade) 2000 to 2008 and Bungendore 2008 till Present. In Bungendore Brigade served as Senior Deputy Captain for 3 years and is currently a Deputy Captain. Also fought the 2003 Canberra fires and has had numerous deployments across NSW and fought the 2019 - 2020 fires from November to February.

The author also is a Rural Fire Instructor, Rural Fire Assessor, Rural Training Facilitator and Rural Training Coordinator and has also trained Fire Fighters in Botswana on behalf of the RFS as Casual RFS staff as a Learning and Development Officer. The author brings this RFS experience plus 24 years public service experience, State and Federal (mostly in Defence) and two Master Degrees (in Science and Management) and an undergraduate Environmental Science Degree to this submission.

Key issues

1. People and Fatigue:

One of the most serious issues that has not been managed very well by the NSW Rural Fire Service is **fire fighter fatigue** and the fatigue of support members/staff and members of the Incident Management Team (IMT). There seems to be a cultural problem of long shifts which do not end after 12 hours and are often 15 hours long. Shift changes regularly seem to be a "surprise" for IMTs and are not well planned. The outcome is serious Workplace Health and Safety (WHS) issues for fire fighters.

1-1 Shift Changes: The majority of shifts during the recent fires and at most fires I have attended over the last 20 years are 12 hours on the fire ground. This usually means at a minimum a shift of 14 hours from leaving Station to returning to Station. As a result Shifts are often too long and this this does not included time at station cleaning tanker, filling it with water and fuel and travelling to and from home to the station.

No crew should be on the fire ground for more than **10 hours maximum and preferably no more than 8 hours on fire ground**. Even 8 hours on fire ground will usually mean 10 to 12 hour on duty shift from home to back home.

A suggested shift roster on the Fire Ground could be

Prime shift of 1400hrs to 0000hrs - 10 hours

Night shift of 0000hrs to 0700hrs - 7 hours

Morning Shift of 0700hrs to 1400hrs - 7 hours

Swing shift of 1300hrs to 2300hrs - 10 hours

Shifts should have about a 15 to 30 minute overlap to allow handovers.

The most **dangerous time at fires (except during a wind change) is usually from about 1400hrs to about 1800hrs**. This 4 hours is often the hottest part of the day and having fresh crews in this dangerous period is essential for crew safety and efficiency of fire fighting. Currently crews in this critical period have been on the fire ground since early morning (usually 0700hrs or 0800hrs) so they are already tired and hot and on most occasions have not had lunch.

1-2 WHS: **Serious WHS issues arise due to poorly planned shift changes**. Current shift changes are often poorly done, without handovers plus considerable time wasted waiting for replacement crews to turn up. Replacement crews often have not been instructed when and where to meet to change crews. Most incoming crews lack topographic plus fire maps and accurate directions. This lack in information often includes what radio frequencies to use on the fire ground and most importantly lack of a reasonable Situation Report (SITREP). Fixed shift change times would enable IMTs to prepare maps and do effective SITREPs for the incoming shifts.

Too long on the fire ground for crews, is the most serious WHS issue the NSW Rural Fire Service faces. Crews are often forgotten and left on fire grounds and change overs are delayed and exhausted crews are then expected to drive back to their stations and homes. This exposes members to serious risk of injury or death.

1-3 Meals: **Feeding fire fighters is more important than the NSW Rural Fire Service seems to think**. Meals provide a badly needed break for crews either during their shift or at the start or end of their shift. Crews on shift should be provided with a minimum of two meals.

Meals need to take into account all special dietary requirements as per NSW RFS guidelines. While a meal is very good for morale, it is really bad for morale if 1 or 2 crew members miss out because there is no suitable food for them to eat. Currently, this omission occurs during most RFS provided meals on or near the fire ground. Most experienced fire fighters carry their own supply of food, but this should not be relied on by IMTs as most fire fighters pay for this food themselves and may be needed if shift change is delayed.

2. Equipment:

In general **most of the NSW Rural Fire Service equipment is workable and reliable, but not always optimal for fire fighting**. The main concerns are the build and quality of the trucks and the associated firefighting equipment. The personal equipment clothing is now used in two versions the PROBAN treated cotton and the FR Viscose (65%) plus Aramid (35%) blend similar to Nomex, plus an RFS issued 100% non fire resistant cotton shirt. The equipment includes a cheap thermoplastic helmet and fire resistant boots, gloves, goggles and flash hood. Recently the RFS has issued cheap P2 smoke masks. Communication equipment and navigation tools are rudimentary and not reliable in emergency situations.

2-1 Personal Equipment: The standard issue PROBAN treated cotton yellow jacket and pants are serviceable, but hot and heavy and there are doubts among many firefighters of the durability of the PROBAN treatment. Most firefighters are only issued one set and have difficulty washing and keeping the one set serviceable. A **minimum issue of two sets of jacket and pants** is required to allow firefighters to wash and clean their protective clothing and still have something to wear the next day. The off gassing of Formaldehyde from PROBAN is a serious WHS issue for firefighters and staff, plus the variable nature of the advice firefighters receive on the durability of the PROBAN treatment is a concern.

The newer issued Nomex type jacket and pants seem to have some durability issues, but are lighter, dry quicker when wet and do not off gas formaldehyde, so would appear to be an improvement. The issue RFS yellow shirt is not a very sensible design, as it is **heavy 100% cotton with no fire retardant qualities**. Nomex type materials are widely used in North America and other states (e.g. South Australia) for firefighters shirts, they are much safer (inherently fire resistant). They are also a similar price, durable, light, dry quickly and more comfortable than the issue RFS shirt. I have used US made Nomex shirts for several years of active firefighting and found them very serviceable and comfortable.

One of the most dysfunctional pieces of equipment the RFS issues are helmets. They are made of a thermoplastic that melts at 175C and could cause serious injury to firefighters in burn over situations. The issue helmets also do not have a proper 3 point harness that have an elastic strap which does not prevent the helmet from coming off with lateral blows or even if the firefighter trips over. Until recently they did not even have a visor (heat shield). They do just meet the Australian/NZ Standard 1801, but it a very poor standard for firefighting helmets and is based on a construction type helmet designed to protect from falling objects from directly above.

The very sad thing is that there is a purpose designed firefighting helmet for bushfires that exceeds the Australian Standard on NSW Government Contract. It is issued to NSW Fire and Rescue for bush fire fighting, RFS chaplains, some paid RFS staff and many other rural fire services in Australia and New Zealand. The better quality helmet is made of Kevlar does not melt (chars at 400C) has a well designed 3 point harness and comes on contract with a visor fitted. Many RFS members use their own funds to purchase this safer and better quality helmet, they are widely used in the NSW RFS despite not been standard issue.

The other piece of issue equipment that is not suitable or safe is the “paper” P2 smoke masks. These P2 masks even with correct fitting generally only filter out a maximum of 85% of dangerous particles and no toxic gases. Many RFS members have purchased their own P3 half face smoke masks which filter out 95% or better smoke particles and others have purchased their own full face masks with filters that filter out smoke particles and toxic gases. The NSW Fire and Rescue issue their members with P3 or better full face smoke masks. The NSW RFS need to **urgently issue a P3 half face masks to all members** and issue a full face mask similar to the issue mask from Fire and Rescue before next season and to all brigades who have Breathing Apparatus and are responsible for fighting structural fires and motor vehicle accidents.

2-2 Brigade equipment: All trucks used by NSW RFS for firefighting need to be fitted as a **matter of urgency with a “Halo” self protection spray and burn over curtains**. My local brigade has 3 trucks and only one has a Halo spray while the other two have an older design spray which can be blown away from the crew cabin in fire winds, endangering the crew. They also only have 1 truck fitted with burn over curtains, these protective Halo sprays plus burn over curtains need to be fitted to all RFS trucks in the state before next fire season.

The **design of RFS trucks is not well done**, for example the truck plumbing is complicated and not standardised between trucks, changes from year to year, not necessarily improved, just changed. The lack of standardised design makes training crews more difficult and increases the risk of mechanical failure plus cost of repairs. Many improvements could be made very cheaply that would improve the safety of crews. The **removal of all plastic from outside of trucks and from door liners** (door liners should be metal) would be simple and increase the safety of crews significantly.

A review of the number of and type of trucks issued to brigades needs to be done on a state wide basis using the data from number of calls attended and local risks. The distribution of trucks at zone and district level is fraught with problems including unfair distribution and inefficient location of trucks. All brigades should have at a minimum a large tanker (CAT1 or CAT2) and a small tanker (CAT7 or CAT9) and a dual cab utility with 5 seats with a small slip on unit (+300l) for crew changeover and patrolling. Each viable brigade should have a minimum of 3 vehicles. Larger brigades in towns, villages and near major highways (plus railways, ports, etc) should have a minimum of two large tankers, a small tanker and dual cab utility with slip on, plus if a Breathing Apparatus Brigade, a pumper unit (CAT10 or 11).

All Rural Fire Service fire stations should be **equipped with solar and battery back up to provide power during extended power outages** and all stations should be equipped with a basic communications room, showers, toilets and meeting room with kitchen. Note, that many smaller regional stations do not have toilets and wash basins.

2-3 District and Zone: All districts and zone should have a **major fire control centre and at least two geographically separated subsidiary fire control centres.** Each should have a minimum of a dedicated communications room and a large air conditioned room that could be used as an incident management centre. They all should be equipped with solar and battery backup to seamlessly provide essential power in case of grid disruption. The subsidiary fire control centres could be attached to or part of normal RFS station located preferably in a small population centre of town or village size.

All districts and zones should have a **logistics support brigade, a catering brigade and communications support brigade.** These 3 brigades should all be structured in a similar manner to a normal RFS brigade and based at the fire control centre or one of the 2 subsidiary fire control centres.

There needs to be a **strategic reserve of at least 1 heavy tanker and 1 small tanker** held at the zone or district main fire control centre and used as loan tankers to brigades whose tankers need to be repaired. This reserve could be older brigade tankers due for replacement and held until another tanker is replaced.

2-4 State HQ: Needs to be moved to central NSW, to a town like Dubbo, Wagga Wagga or Bathurst/Orange. The current culture of the Sydney based HQ is not very relevant to the RFS outside Sydney, Newcastle or Wollongong, it is after all the **Rural Fire Service** not the Sydney Basin fire service.

This **relocation besides improving the culture of HQ would also provide a major back up command and control centre** for the NSW Government outside of the Sydney Basin in case of major national or state wide disaster.

3. Communications:

The communications equipment used by the RFS is often very modern and works well when there is not an emergency. The **failures occur when the communications systems are stressed. They are not designed for the heavy communications traffic that occurs during emergencies** and are not of a resilient design with little or no redundancy. If a node fails or is overloaded communications fail when most needed. There is an over reliance on the private mobile phones of volunteers and staff, which is not a very robust system in emergencies. Navigation equipment is non existent in trucks, except what members and brigades purchase with their own funds.

3-1 Briefing material and Navigation plus Maps: The RFS has Incident Management Teams (IMT) who produce Incident Management Plans. The Plans are useful, but often out of date at time of issue and at most shift changes there are not enough copies of the plans for each crew, there are **not even enough copies of maps**. I mentioned earlier **shift changes are poorly handled** and part of this is the poor quality or lack of handovers and the non existence of up to date briefing material. It is like shift changes come as a surprise to the IMT. Very tired crews coming off shift after 12-14 hours just want to get home and fresh crews are often stuffed around at staging areas. The whole **process of shift changes needs to be reviewed** with an emphasis on information exchange and up to date maps provided to fresh crews.

Navigation can be difficult in major fires and the NSW RFS does not provide Global Positioning Systems (GPS) in any of their fire trucks. **GPS should be standard on every RFS truck**. The GPS should be able to display in a large font a current 6 figure grid reference visible to all the crew and have a moving map display. A good GPS does not eliminate the need for good paper maps of the fire ground and a GPS needs to be able to function without any dependence on the mobile phone network or another form of communication (except for the GPS satellite network). There is a growing trend for **members to use a mobile phone or iPad** as a navigation tool, but both of these often get a flat battery and are dependant on mobile phone towers and coverage, both of which may not be available in a bush fire. My local brigade has obtained and fitted 4 Hema GPS to our 3 trucks and dual cab utility, which display a moving map display and 6 figure grid reference. The GPS technology is already in the market and could easily be fitted to all RFS vehicles for ~\$600 per vehicle.

3-2 Radio communications: **The RFS communications systems are not designed for major emergencies, they are minimal systems with poor redundancy and cannot cope with rugged terrain and node failures.** The main radios are part of the NSW Government Radio Network (GRN) and are shared with other government agencies. This sharing results in system overload at incidents and severe overload in major bush fires. The loss of communications nodes occurs during fires and the design of the system is such that without repeater nodes the system barely performs over line of sight and easily disrupted by hilly terrain.

The VHF Fire-ground radios supplied in each truck really are only line of sight and often do not even have the performance of UHF CB radio. CB radios are often fitted to trucks by local brigades at the brigades own expense, as they allow communication with local farmers and others who may be on the fire ground and are often used instead of VHF when they have better range.

Mobile phones are often used by crew leaders, sector leaders, fire control and members due to the poor quality of Rural Fire Service provided communications systems. Unfortunately, mobile phones are also unreliable, but do provide another way of communicating during a fire. Sadly, mobile phones often work better than Rural Fire Service provided communication systems.

3-3 Debriefing and handovers: **Almost every shift change seems to come as a surprise to the IMT.** The one thing that the RFS seems to be unable to do is shift changes. The basic shift is 12 hours on the fire ground which is too long and dangerous and also results in crews often working for ~15 hours, plus time to clean out trucks (fill up fuel and water) and get home. The shifts need to be shorter and limited to 8 hours on the fire ground which will still end up as 10-12 hour shifts, but with set shift change times changeovers should not be a surprise to the IMT. Copied from above, the below timetable is a suggestion, but fixed 8 hour fire ground shifts could also work.

A suggested shift roster on the Fire Ground could be

Prime shift of 1400hrs to 0000hrs - 10 hours

Night shift of 0000hrs to 0700hrs - 7 hours

Morning Shift of 0700hrs to 1400hrs - 7 hours

Swing shift of 1300hrs to 2300hrs - 10 hours

Shifts should have about a 15 to 30 minute overlap to allow handovers.

The key problem with the current shambles of shift changes is the poor quality of handovers from crews. Crews on the fire ground often do not know when the relief crew will turn up and are regularly faced with choice of staying put with an exhausted crew or leaving a fire which could flare up and become more dangerous. Often when the relief crews turn up the previous crew has departed or is so tired the handover is poorly done. Poor handovers also often occur at sector and division levels.

4. Health issues:

Members health is put at risk by the NSW Rural Fire Service in many ways. Their **physical health is damaged by fatigue, accident, smoke, injury and their mental health is damaged by Post Traumatic Stress Disorder (PTSD) and frustration** with the RFS inherent inefficiencies.

4-1 Physical health: **Fatigue is the most serious problem faced by volunteer fire fighters.** The shifts are too long and breaks between shifts need to be longer than 24 hours. Injuries were caused by many things like falling trees, vehicles, trips, burns and smoke inhalation all of these injuries were exacerbated or made more likely by fatigue.

Smoke inhalation is a major problem, 6 fire fighters in my local brigade (including the author of this submission) had been hospitalised by smoke inhalation. This occurred in one shift due to an intense wind change and inadequate smoke protection. Fire fighters need to be provided with much better smoke masks and trucks need to be equipped with HEPA filters and working air conditioning. The fire truck can provide a refuge from the smoke, but the standard RFS truck often does not have working air conditioning and certainly does not have effective air filtration.

4-2 Mental health: **Counselling services need to more proactive and need to by pass local fire control centres and brigades,** especially where a fire fighter requires ongoing counselling. There is no place for chaplains and various religious services in the counselling service provided by the Rural Fire Service, it needs to be non religious and professional, not staffed by volunteers or local churches.

There are serious privacy issues with local involvement in critical incident support services and workers compensation claims. These matters are very sensitive and need to be dealt with well away from the local RFS.

4-3 Long term health effects: Smoke inhalation will cause long term damage to lungs and significantly increase the **risk of future respiratory problems**. The exposure to bush fire smoke will increase the **risk of cancer**, plus the **exposure to chemicals** from structures and vehicle fires will also pose risks to fire fighter health. Long term health monitoring of all volunteers is essential as is the need for much better record keeping by the RFS of which incidents volunteers attend.

5. Proposed Solutions and key Recommendations:

For detail behind each recommendation please see main text of submission.

1 People and Fatigue

- (i) Mandate maximum hours permitted on fire ground and mandate minimum break between shifts.
- (ii) Mandate meal breaks and provide catering for all dietary needs at or near the fire ground.

2 Equipment

- (i) Provide all fire fighters with 2 complete sets of fire fighter clothing (jacket + pants) and include 2 fire resistant shirts.
- (ii) Replace issue RFS thermoplastic helmet with the type of Kevlar bush fire helmet issued to NSW Fire & Rescue under Government Contract.
- (iii) Issue all fire fighters urgently with a half face P3 smoke mask
- (iv) Urgently retro fit Halo sprays and burn over curtains to all RFS tankers.
- (v) Remove as much plastic from trucks as practical, especially door liners.
- (vi) Develop a standard design for each size of fire truck, preferably nationally.
- (vii) Review allocation of trucks to brigades and base allocation on activity and local risks.
- (viii) Provide all RFS stations with solar power and battery backup in case of grid failure.
- (ix) In each zone or district have at least 3 fire control centres (1 main + 2 backup)
- (x) Establish a Logistics, Catering & Communications Brigade in each district.
- (xi) Establish a strategic reserve of a few older tankers held at Fire Control
- (xii) Relocate Sydney HQ to central NSW to improve functionality & culture.

3 Communications

- (i) Review shift change procedure to ensure all crews are briefed at start of shift
- (ii) Issue all crews with paper maps of the fire ground.
- (iii) Install a GPS with moving map display in every RFS Fire Truck.
- (iv) Review all RFS communications systems and ensure they can handle emergencies.
- (v) Rethink the shift change process with emphasis on crew fatigue management.
- (vi) Standardise shift handover procedures at all levels including crews, sector & division.

4 Health issues

- (i) Manage fire fighter fatigue proactively
- (ii) Reduce smoke inhalation through smoke masks and filters on trucks air conditioning.
- (iii) Respect members privacy who access counselling through the RFS.
- (iv) Monitor the long term health of all volunteers over the rest of their lives.

6. Conclusion:

The RFS is a predominately volunteer organisation dominated by a few paid staff. Unfortunately the time of volunteers is not valued highly by paid staff and many mundane activities like ferrying trucks are done by volunteers when they should be done by paid or contract maintenance staff. Also during extended fires volunteers are often not well utilised and left over long in staging areas or worse left too long on the fire ground resulting in fatigue and WHS issues.

The RFS has many dedicated volunteers who do a great job which is often not appreciated or understood by the people of NSW. Many people still think volunteers are paid and an education program for the public on who volunteers are what they give to the community would be of value.

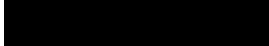
Volunteers want their health and welfare looked after and they want their equipment to work well and protect them when needed. They do not want to do a professional job fire fighting on the cheap. The service needs to be properly resourced, its culture modernised and paid staff need to better respect volunteers generous contribution. Better care of the Rural Fire Service volunteers needs to be a normal part of the culture in the service,



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If clarification or more information is required please do not hesitate to contact me at



Attachment:

1. Black Range Fire Diary - log of author's fire activity during 2019-2020 added for background information only and is of a more candid and personal nature and preferably not published.

Spring in Queanbeyan, Bungendore, Braidwood 2019-North Black Range & Charleys Forest

Introduction:

The North Black Range fire was started by a lightning strike in a very remote part of the Tallaganda Forest and the Rural Fire Service quickly responded several tankers when the smoke was sighted. They could not contain the fire West of the North Black Range fire trail and the fire quickly spread across the Tallaganda made much more intense by climate change which made moist Wet Sclerophyll forest very dry and flammable.

The fire crossed the Tallaganda and started to break out onto open farmland on the afternoon of the 29th of November. Multiple Rural Fire Service brigades across the Lake George area and beyond fought the fire along with local farmers, NPWS, Forestry and Fire and Rescue units till the 21st of December and likely longer.

Fire Diary:

November 29th-30th Bungendore Cat 7

All truck page occurred after lunch at which point Bungendore 1A +7, Carwoola 1 and Ridgeway 1 formed a strike team at Bungendore Station and then waited for about 2hrs for tasking. Staged units were then responded to Braidwood area.

The Bungendore **Cat 7 with Terry as Crew Leader and Damian as driver** responded. We worked along the Farrington Road near Bombay. Initially we dealt with lots of spot fires which turned into running grass fires. Unsuccessful efforts were made to keep the fire west of Farrington Road. We then moved into property protection mode and our 3 truck strike team successfully protected all the houses in our area. However we did lose a couple of sheds. **We were on duty from about 1:30pm Thursday till about 1:30am Friday morning.**

Working from crew bay on back of truck despite smoke mask got considerable smoke inhalation and developed cough.

December 1st-2nd Bungendore Cat 7

The fire continued to burn in open country west of Braidwood. The town and surrounding properties came under threat. Bungendore **Cat 7 with Sandi as Crew Leader, Terry as Driver and Drew as crew** proceeded to Braidwood where we dealt with a 000 call in which flames were reported coming over a hill. It turned out to be flare ups on already burnt ground, which were difficult to get to and extinguish, but we were successful later that night. We were tasked to operate with a large commercial unit with monitor and foam (ex airport fire tanker) to prevent active fire from crossing a road with lots of tall tea tree along its edges. After a time we assessed the situation and decided to directly attack the fire in shorter tea tree before it got to the road. This attack and blacking out was very time consuming but managed to contain the fire and allowed the release of all other units. After sunrise we returned to Braidwood for a very nice breakfast (bacon & eggs) then back to Bungendore. **We were on duty from 1900hrs Sunday till about 0930hrs Monday.**

Went out again to fire ground had less smoke than previous night out, but still had a lot of smoke around most of the night, coughing got worse.

December 3rd -11th medical leave and Communications Room supervision at Queanbeyan

Terry did a 1900hrs to 0700hrs shift from Thursday night to Friday Morning and was then tasked to do two 12 hour day shifts on Saturday 7th and Sunday the 8th. They were very difficult shifts. Queanbeyan fire control did not seem to be functioning well despite the best efforts of some paid staff and some RFS and SES volunteers. It was very pleasing to finish the last shift on Sunday and to get back on trucks.

Had break from fire ground, did 3 shifts supervising communications and training SES operators. Smoke levels high in Queanbeyan Fire Control, cough continued, but eased a bit.

December 13th - 14th Bungendore Cat1

Terry was Crew Leader with Paul V in the front seat and Ian V driver and Steve B. Patrolled Jones Road and Watsons road all of North Division with only Bungendore 1 and no Div Com. We communicated with Div West mostly by phone due to the usual poor radio communications. We located a largish hot spot on a hillside off Watsons Road and tried to get to it with a Cat 1 . Could not get to it and Ian had to carefully back down a very steep track and then turn around, we reported the hot spot and then continued patrolling. We did a weather report after sunset and the RH was 82% and rising, it then started to drizzle rain. We drove around for some hours in the drizzle with windscreen wipers going and found no more hot spots. After 2300hrs called Div West and told him it was drizzling and visibility was poor and we had found no more hot spots so he then released us from the fire and we returned to Bungendore. **We did a shift from 1800hrs to 0000hrs.**

Due to high humidity smoke at fire ground was still present but less severe than previously, cough has eased a bit more.

December 15th Bungendore Cat 1

Terry was crew Leader with Paul Davis as Driver and crew was Paul V, Tony V and Steve B. We started staged at Foxes Elbow Road as part of a strike team with Wamboin 7, Queanbeyan 7, Jerrabomberra 1 and Division East PC. We were assigned Jones Road and Watsons Road in Gourock Range Sector. We relocated the hot spot from 13th and it was no longer smoking. However, we still could not reach even with a Cat7. We then went up a dozer track to the top of Gourock Range where we put out some hot spots and looked down onto the problem hot spot and still no smoke from it.

We then continued to Patrol the sector, extinguished a couple of small hot spots and later in the afternoon spotted a burning tree in a gully well away from fire edge, but putting up a bit of smoke. Helicopter had also spotted it and we communicated on UHF Ch13 and we put some water on tree to slow it up. We did a welfare check on a couple of remote properties off Jones Road then returned to staging and then Bungedore station. **We were on shift from 0900hrs to 1800hrs.**

Smoke on fire ground was increasing especially on top of Gourock Range, working for long period of time in pervasive smoke. Coughing started to get worse again.

December 18th Bungendore Cat 7

Terry was Crew Leader & Driver Paul V was crew, we were called to assist Bungedore 1 which had a crew of 2 of Sam and Sandi to blackout the **Aberfeldy fire** we dealt with a couple of hot spots and also saw a small tiger snake in an area of burnt trees. **We were on shift from 1300hrs till 1930hrs.**

Blacking out after fire passed not very heavy smoke seemed ok to work for extended time patrolling and blacking out.

December 20th Bungendore Cat 7

Terry was Crew Leader & Driver Bill W was crew. We were staged at Braidwood and formed up with Division North. We were assigned to do from Manar Road to Tally Ho road, but after checking multiple extinguished hot spots were reassigned to head West from Manar along fire edge till we met up with Div West (NPWS) in Butmaroo Sector. We had much difficulty sticking to fire edge due to terrain and access. We got into the back of a large property via a locked gate which the farm manager opened for us and he led us to a NPWS Cat 9 and the burnt edge of the fire. We then tracked along the burnt edge in Butmaroo Sector till we found Div West who was most helpful and gave us a complete IAP with maps of his sector. He then requested we support one of his units with a peat/humus bog fire on Butmaroo station. We found the Cat 9 and local farmer and extinguished the bog fire using a lot of our water. We got permission to fill up at a local dam with very green water. We then continued patrolling till we were released by Div Com North (Group 2 South). **We were on shift from 0900hrs to 1900hrs.**

A long day mostly patrolling in light smoke, which got heavy with wind change in the evening and became more difficult to work in as it got darker. Cough got worse.

December 28th to 29th Cat 1B

Rob A was Crew Leader and Damio was Driver and Terry was crew. Left Bungendore Station at 1900hrs and exchanged crew on the fire ground on Oallen Ford Road during the fire crossing the road, literally a hot crew change. The tanker was low on water and fuel so crew coming off shift went back on mini bus while we took tanker to Nerriga to get fuel. After filling fuel we went looking for the bulk water truck which we found back near the North Flank of the fire and we refilled with water, so after about an hour at the fire we finally had both fuel and water. We were tasked with property protection at the other end of the fire. We then without any fire maps proceeded using my borrowed GPS and asking directions to find Ningee Nimble Creek Road which we then travelled to the end off to numbers ~530 and 464 and went into property protection.

We found Captains Flat 7 who were sector leading and asked us to stop fire coming down hill getting into thick Tea Tree, we promptly did this using little water and then checked out rest of 530 which had been well set up, except for gas bottles in drive way, which I got the owner to move into garage out back. We worked on this property for some hours further suppressing the fire and tape marking dangerous trees. We then went out for more water and to patrol the road. We found the bulk water tanker back near Nerriga, filled up and returned and checked out 464 on way back, it was ok with a dozer track around it and fire flame height about ½ m.

Went back to 530 and worked on the fire again, joined by ACT tankers and rested till 0500hrs when ACT task force left, had a 20 min sleep then went to Oallen Ford Road and put out fire trying to go under a bridge. Then went to Nerriga for breakfast. **We were on shift from 1900hrs to 0930hrs.**

December 31 Cat 7 - Stood up at Station for **1630hrs to 1830hrs Terry Driver & Shaun CL**

January 4th to 5th Cat 7

Terry was Crew Leader and Greg was driver with Steve as Crew. We responded to pager from Bungendore Station to Charleyong Bridge to stage. We were unable to get any useful information from Fire Control about which radio channels to use and who was going to be our strike team leader. Hence we arrived at staging and two other trucks were there and no Strike Team Leader and no one knew which radio channel to contact anyone on despite repeated requests to Fire Control for more information.

Eventually Queanbeyan Captain arrived and took over as Strike Team 4 leader, he then did a quick brief, his first question of the Crew Leaders of by then 5 trucks who has an Incident Action Plan or current fire maps, of course the answer was no one. He did not have any either, but very resourcefully used his iPad maps. This at least gave us some situational awareness. We then responded up to Nerriga road then around to Oallen Ford Road and then turned South to get back to the fire, the long way round.

When we arrived we went for reconnaissance along a road then down a very wide dozer track fire break. We got past most of the properties into thicker bush, where our strike team leader did more reconnaissance while we staged, while he was gone the radio traffic indicated the Southerly Change had started to arrive at the fire. I shortly noticed the change in smoke behaviour and winds picking up and changing direction I then notified our Strike Team Leader on VHF fire ground radio that the wind was changing and we should consider moving, he acknowledged and rejoined us. We had a quick briefing and headed away from the thicker bush back to the local properties. Approximately 1km back Bungendore Cat 7 was assigned the last property on the road.

Upon arrival we found two civilians who were very unprepared. I advised my strike team leader on VHF of the situation. They were in shorts and short sleeves with two garden hoses wetting down their timber deck and surrounding area. Greg my driver and I discussed the positioning of our tanker and Greg and Steve set up 1 line 2 lengths of 38mm and partly unrolled the live reel. I was very pleased with the setup of both tanker and hoses.

The two civilians told me they were going to leave soon, I strongly advised this was very dangerous at this late stage with fire approaching that they could be killed on the road driving out. I instructed them to immediately put on long pants and long sleeves of cotton material. I also told them to stop using the garden hoses and turn them off, in the meantime I did a quick property

assessment while Greg checked out available water supplies. The civilians came back outside and moved a small gas bottle and 10l petrol container, 4 aerosol gas canisters and turned off and moved their portable generator. I relocated the flammable materials to a safer location and told them to get wool blankets and get back inside and lay on the floor under them till we told them it was safe to come out. They did go inside, but kept coming outside, unfortunately they were a distraction and nuisance to me and my crew.

I got them back inside just as the strong winds of the change picked up and the fire approached, very fortunately for us at this time the wind shifted from the South to the SE and the fire front went from directly at us to more to the NW. This wind shift prevented the fire impacting us, but we were heavily impacted by smoke and several whirl winds with smoke and dust. My crew fortunately kept their smoke masks and goggles on. I unfortunately had to pull down my smoke mask to yet again tell the civilians to get back inside and then get on the radio to inform our strike team leader of the wind change (as we were the closest unit to the fire front at this time). The portable radio could not reach our them, so I moved to the tanker and used the VHF radio in it, which did work. While I was doing this I inhaled even more smoke. My smoke inhalation problem occurred in these couple of minutes with the need to pull my mask down to ensure the safety of the civilians and communicate to our Strike Team Leader.

Soon our strike team leader returned checked on us and then did a reconnaissance past us back toward the fire. The initial areas where we had stopped had been burnt out and on his return he instructed us to make up, which we did. I also advised him we need to escort the two civilians back to Oallen Ford road and direct them to Tarago. He agreed and we then escorted them out.

Later we staged for a while downwind of the fire in smoke, we were then sent to Nerriga for dinner, where we were to pick up Jerrabombera Creek Cat 1 who were dealing with a slop over of fire on Oallen Ford Road who were unable to be reached by radio.

The Girl in Black Dress and dinner at Nerriga pub. We travelled South on Oallen Ford Road and found Jerrabomberra Creek Cat 1 and Nerriga Cat 7, as we approached there was fire on both sides of the road and as we looked at the tankers we saw a girl in a short sleeveless black dress who was in the edge of the fire holding a hose. The question was who in the Rural Fire Service was wearing a black dress. When we got closer we saw between the two tankers was a private slip on unit with 2 guys and 2 girls, who had stopped to give a hand. Jerrabomberra Creek Cat 1 quickly joined us heading to the Nerriga Pub where we got dinner and some take away meals for Burra 1. When we were leaving the Pub the guys and girls from down the road turned up at the pub, clearly they were heading for the Saturday night at the pub and stopped to give a hand with the fire on the way.

We returned to staging, delivered the meals and were soon released as a Northern Beaches Strike team arrived from Sydney to relieve us from the fire ground. We had a slow 1 hour plus drive back to the station in thick smoke and I took more than another ½ hour to get home from the station at 60km/hr on the Kings Highway, due to the thick smoke. **We were working in the station from 1330hrs and paged at about 1530hrs and responded then on shift at fire from 1600hrs to 0015hrs got home at 0130hrs.**

Got home had shower went to sleep woke up next morning with breathing problems and went to Queanbeyan Hospital Emergency Department where I was admitted for 3 hours and treated for smoke inhalation and receiving ongoing treatment from my GP.

January 23rd to 24th Cat1B

Tony was Crew Leader, Ion was Driver with Terry, Cory and Steve as crew. Charleyong area to the East of Stewarts Crossing we went out to do a large tactical back burn which was controlled by Charleyong Captain. We successfully burnt about 2kms of solid edge along unburnt forest and left station at 1530 and returned 0130 on the 24th.

Stayed out of smoke mostly and wore P3 smoke mask and no GF meal provided at dinner. First fire outing since receiving all clear from GP since smoke inhalation.

Key Lessons Learned:

1. Queanbeyan Fire Control (QFC) despite new staff and S44 resources are still **not communicating well with crews on the fire ground**. Considerable resources have been wasted on patrolling benign areas while active fire is a problem in our zone, patrol shifts are “set and forget”. There is little consideration for crew welfare as non essential activities are expected to be carried out in the heat of day rather than cool of the morning or evening.
2. **QFC are also keeping crews on the fire ground for far too long** and do not take into account travel times on shifts. Brigades need to manage the expectations of QFC better and say no to them more often and negotiate shorter shifts.
3. **Crews are getting fatigued by overly long shifts and too short a break between shifts**. A minimum of 24 hours should be mandated between shifts and shifts no longer than 8 hours on a fire ground per shift, note this still means 10-12 hour shift when travel times from home and station are included.
4. **Staging needs to take into account the location of the brigade station and the area needing attention**. Way too often Bungendore crews are sent to Braidwood then work on the fire ½ way back to Bungendore. This is very tough on tired crews and a waste of scarce resources.
5. **Meals for special dietary needs must be taken into account on all shifts**. They are often not catered for despite Rural Fire Service guidelines mandating it.
6. **Modern GPS are needed for all trucks** and paper maps need to be checked and up to date, plus **Incident Action Plans need to be provided to all trucks** (or up to date fire maps at a minimum)
7. There is **way too much use of mobile phones GPS** which flattens the phone battery.
8. **Communications needs improving in all trucks**. In particular they need to have a portable VHF handheld of good quality and range provided by QFC.
9. **Shifts need to be maximum of 8 hours on fire ground** and when most crews leave and Div com leaves 1 truck should not be left behind on fire ground, 1B was left on its own on the Charleys Forest Fire for 3 hours, this is a serious fatigue and safety issue.
10. **Management of crews exposed to smoke needs to be addressed** some of this could be managed by better position of crews in benign times, upwind not downwind. Also shorter shifts would reduce exposure, also moving crews out of smoke after wind changes, plus provide better smoke masks and do not send trucks on fire ground with faulty air conditioning.