Title	Mr
First name	Darren
Last name	Rodrigo
I am making this	Emergency services
Submission type	Personal
Your position in the organisation (if	Advanced Firefighter
Consent to make submission public	Public
Your story	SUBMISSION TO THE NSW INDEPENDENT BUSHFIRE INQUIRY DARREN RODRIGO – ADVANCED FIREFIGHTER KATOOMBA / LEURA RURAL FIRE SERVICE INTRODUCTION Thank you for the opportunity to make a submission to the NSW Government's Independent Bushfire Inquiry. This submission is based on my experiences during the historic 2019-20 bushfire season, and as a volunteer firefighter since 1994. I was deployed with Katoomba / Leura RFS from October 2019 to February 2020 in multiple locations across the state where I had the opportunity to observe the operations of the RFS organisation, individual brigades and individual firefighters over

I make these recommendations to contribute to the ongoing improvement of bushfire management in NSW, toward to ongoing organisational improvement of the RFS and to contribute to the safety and welfare of volunteer firefighters.

ABOUT KATOOMBA / LEURA RURAL FIRE BRIGADE Katoomba / Leura Rural Fire Service is a Brigade of the Central Sector in the RFS Blue Mountains District of NSW. Founded in the 1965 the Brigade currently has around 50 members with large number of years' experience among its members in bush firefighting. Typically it operates a Cat 1 (heavy tanker), Cat 7 (light tanker) and a personnel carrier. Heavily engaged in the 2019-20 bush fire season the Brigade contributed 10,337 hours in bush firefighting efforts and its members served right across the state in out of area deployments and locally in the Blue Mountains. During the fire season, Katoomba / Leura Rural Fire Service operated back to back crews, day and night for 24 hours a day for an eight-week period. This exceeded our previous record of four weeks nonstop operations in the bush fire season of 2001-02

AVAILABILITY OF BUSH FIRE FIREFIGHTING APPLIANCES The 2019-20 bushfire season clearly demonstrated that the RFS does not have enough serviceable firefighting appliances. To illustrate why this is a problem let us explain our own Brigade's experience during the fire season.

In September 2019 Katoomba / Leura's category 1 heavy fire tanker (Cat 1) was deployed to the northern NSW as part of an out of area task force.

Once our crews had returned after their deployments, our Cat 1 tanker remained in northern NSW and was crewed by other RFS firefighters, and eventually firefighters from overseas.

While we acknowledge this was arrangement was necessary to meet the immediate firefighting needs of the north coast at that time, despite our concerns and inquiries, our Cat 1 failed to return to our district even as the fire threat of the summer months of December and January approached and our own towns were in danger.

The Blue Mountains is one of the most fire prone regions in the world and our primary fire tanker was sorely needed to address our local threats and to protect our communities.

In fact, our Cat 1 tanker, the Brigade's primary response vehicle was not returned to our Brigade until March 2020, long after the fire threat had ceased.

This meant that Katoomba / Leura RFS had to face no less than seven major bush fires in our district, three of which presented existential threats to the entire Blue Mountains community, the worst bush fire threat the Blue Mountains has ever experienced in our history, without the use of our primary response vehicle. This seriously undermined the operational capability of the Brigade and had a significant impact on Brigade morale. We are aware that several other Blue Mountains Brigades were in the

same position, being deprived of their Cat 1 tankers, with a similar impact on their morale.

To compensate, we were provided with an old smaller Cat 7 tanker from another Brigade. However, this vehicle was not road worthy. It had a broken handbrake, and a compromised heat seal beneath the crew leader's seat, which increased the amount of heat stress and fatigue the crew leader experienced. Given the desperate nature of those days in November,

December 2019 and January 2020, we were forced to make do and despite repeated breakdowns and defects, continued to operate that Cat 7 and our own Cat 7 to contribute to the firefighting task.

When our Cat 1 tanker was returned to us after 6 months of constant use, it was in extremely poor condition and riddled with defects requiring significant repairs.

We have deep concerns as to the reliability of our Cat 1 primary firefighting appliance going into the next fire season which is a deeply demoralising prospect for our Brigade.

RECOMMENDATIONS

With length and breadth of the fire season across NSW, and the extended period of deployment required by RFS crews to mitigate it, it is clear that NSW needs a reserve fleet of fire appliances not directly attached to Brigades, but ready and available to provide surge capability at times of great need in specific regions.

Recommendation – that the RFS develop and maintain a reserve fleet of firefighting appliances to provide surge capability during periods of high firefighting need.

Serviceability of vehicles – The breakdown of fire appliances was also a major issue this fire season. At no previous time have our appliances been pushed harder than they were during the 2019-20 fire season. Many of them were in 24-hour operation for several months. Understandably, this led to a high number of breakdowns which undermined Brigade operational capability and reduced much needed firefighting resources during periods of high need.

While existing repair facilities did their best, the turnaround time for these operations was simply not sufficient. Our own Cat 1 was tied up for several weeks while \$19,000 worth of repairs were carried out. We needed that vehicle back in the line to contribute to local bush firefighting efforts.

The RFS mobile repair capability (mobile mechanics) should also be dramatically increased, so firefighting appliances could be repaired in situ without the need to pull the tanker out of the line and away to another far off location for repairs.

Recommendation – that the RFS significantly upgrade its contracted repair facilities and capability to repair firefighting appliances and return them to fireground in a shorter turn around period.

Recommendation – that the RFS significantly increase its capacity to repair firefighting appliances in the field through the use of mobile mechanics or mobile workshops.

SAFETY OF BUSH FIRE FIREFIGHTING APPLIANCES This bush fire season has revealed the clear deficiencies in the safety of our bush firefighting appliances for our volunteer firefighters. These deficiencies consist of three main categories: - Lack of rollover protection of firefighting appliances - Lack of fire protection sprinkler systems or 'cabin sprays' for

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- Lack of drop-down fire blankets for older firefighting appliances. Lack of rollover protection of firefighting appliances Many near misses or accidents which have injured or killed firefighters have involved trees falling on vehicle cabins. Without pre-empting the outcomes of the coronial inquests into the deaths of firefighters Andrew O'Dwyer, Geofrey Keaton Samuel McPaul, all were killed in accidents which involved vehicle roll-overs. These deaths may have been avoided if those vehicles had been adequately retrofitted with internal cabin roll over protection systems.

Lack of fire protection sprinkler systems for appliances While firefighters make every attempt to avoid a situation where their vehicle is overrun by fire, the increasing volatility and ferocity of bush fires has made this an increasingly likely occurrence.

Unfortunately, many older firefighting appliances are not equipped with cabin protection or tyre sprays. These systems can be absolutely invaluable in the instance of an overrun and can be instrumental in saving firefighters lives. The cabin protection sprays must be able to be activated from inside the cabin by firefighters without requiring firefighters to exit the vehicle.

Lack of drop-down fire blankets for older firefighting appliances Drop down reflective fire blankets, installed across front and side passenger cabin windows can be invaluable in saving firefighters lives in the event of a bush fire overrun. Older firefighting appliances do not have these systems installed.

RECOMMENDATIONS

While we acknowledge that roll over protection, fire protection sprinkler systems and drop-down fire blankets are installed in the newest RFS tankers currently being rolled out, a very large number of these firefighting appliances in the RFS fleet do not have these invaluable, lifesaving systems installed. Additionally, only a very small number of new or refurbished Cat 1 tankers is rolled out each year. In 2018/19 of an RFS tanker fleet of 3,820 just 61 new or refurbished Cat 1 tankers were added or replaced in the fleet.

If the RFS is relying on the roll out of new Cat 1 vehicles to eventually ensure Brigades are equipped with roll bars, sprinkler systems and drop-down fire blankets, at this rate of replacement, it would take approximately 62 year for the entire fleet to replaced.

Clearly, this is not a viable solution.

What is of greatest concern is that there does not appear to be any program targeted at retrofitting these tankers to improve their safety for volunteer firefighters, and the RFS appears to only be introducing these upgraded safety measures with the new fleet over an unacceptably long number of years.

This leaves large numbers of volunteer firefighters with existing older vehicles dangerously exposed to injury and death in absence of these lifesaving systems.

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This did not include additional travel time that some members had to add after their shift had finished.

Clearly, this presented a significant workplace, health and safety risk to firefighters who were often operating in adverse conditions, undertaking work of an extremely physical nature. As the fire season progressed it became increasingly difficult to crew night shifts as these took a particularly heavy toll on firefighters. Our Brigade considered splitting night shifts into an 6pm to 1am shift and the 1am to 8am shift but we simply did not have the available firefighters to undertake this staffing structure and the logistical difficulties of transporting replacement crews to the location of trucks out in the field made this crewing system extremely difficult to implement.

As a result, firefighters and drivers continued to operate in circumstances where they were heavily fatigued and under great

stress. It is extremely fortunate that this did not result in serious injury of death in our Brigade.

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The impact of the extraordinarily intense period of deployment was to significantly impact the livelihoods of Brigade members. Fortunately for the Brigade, many of our senior officers and members are self-employed meaning they have greater flexibility around organising work. However, these members sacrificed tens of thousands of dollars in foregone wages to lead and make up crews and to serve their community.

The protracted nature of the fire season, lasting almost 6 months exerted massive pressure on our firefighters and their families. If future fire seasons are to replicate or exceed the intensity, length and ferocity of 2019-20, and according to all scientific reports, this is likely, it will not be sustainable for our firefighters to continue to make such massive personal financial sacrifices every year.

Recommendation – that the RFS carefully consider how it will increase its workforce capacity to met the growing needs of future fires seasons and support existing firefighters better into the future.

CAPACITY TO TRAIN NEW VOLUNTEERS DURING FIRE SEASON

As articulated above the 2019-20 fire season placed enormous workforce pressures on our Brigade and on the RFS more generally. We desperately needed more help.

A clear deficiency in the current RFS structure is the incapacity to train new firefighters during the fire season to provide any surge capacity in manpower.

This was particularly frustrating because on the one hand we had exhausted firefighters who desperately needed to be relieved or rested, and had new members of the community who wanted to join, but no expeditious path to get new members trained and into the field until the end of the fire season.

Given the high profile of bush fires in the media during the season, it is also the best time to recruit new members to the Brigade, but again, we have no mechanism to meaningfully involve these potential new members into our Brigade until after the fire season is over, by which time, the interest has often waned.

In the face of more severe fire seasons in the future which may last up to 7 months, we will absolutely need to engage this potential new labour force during the bush fire season and get them into the line under the care and direction of existing trained firefighters.

I therefore recommend that the RFS investigate a centralised training system during extreme bush fire seasons where there is a great need for additional firefighters.

This could take the form of a one or two-week full-time training camp where new firefighters would complete enhanced Basic Firefighter training. Once completed, these firefighters could then be released back to their Brigades to be integrated into trained crews under careful supervision.

This would provide the RFS with a much-needed surge capacity and would provide relief and support to existing firefighters. Having completed a fire season with their Brigade, this measure would also assist the RFS and local Brigades to recruit and retain trained firefighters on an ongoing basis.

Availability of drivers and crew leaders

Throughout the extended periods of deployment in the 2019-20 fire season it became quickly apparent there was a general shortage of crew leaders and qualified drivers. To address this issue, a similar approach of expedited training could be applied to RFS driver and crew leader courses, where existing trained firefighters entering an intensive one or two week course to quickly complete these courses, before returning to their Brigades to fulfill these roles.

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The current issue P2 disposable masks do not provide adequate respiratory protection for heavy smoke conditions experienced on the fire ground, and are not sufficient particularly for extended periods of use (up to 10 hours) as was often required this fire season.

The impact on this insufficient protection for firefighters was twofold. First, insufficient respiratory protection undermined the operational capability of firefighters on the fireground, as they struggled to operate in heavy smoke conditions for extended periods of time.

Second, this insufficient respiratory protection resulted in an immediate health impact, in terms of a persistent cough and general feeling of unwellness, and a longer, no doubt yet to be realised impact on the long-term health of firefighters due to repeated exposure to bushfire smoke.

At times throughout the bushfire season in late November and December, the air quality in Sydney was so poor, breathing it was compared to 'smoking 37 cigarettes a day.' If this was the impact of bushfire smoke on people hundreds of kilometres away from the fire, there is no doubt that the impact of bushfire smoke on firefighters who spend many hours directly on the fireground is significantly more adverse.

As a result of these risks, many firefighters including myself, choose to equip ourselves with personal half face or full-face respirators with filters specifically designed for organic smoke vapours. In my experience this was extremely effective is filtering out heavy smoke and allowed me to continue operating without restriction, including under a heavy physical load in very heavy smoke conditions.

Additionally, the use of a respirator prevented the usual post bushfire symptoms of a cough and general feeling of unwellness that occurs in the days after attending a bushfire.

Recommendation – that the RFS research, acquire and roll out respirators for RFS firefighters or put in place a subsidy scheme on respirators which meet particular standards so that firefighters may purchase their own but receive a fixed reimbursement for it.

AERIAL FIREFIGHTING NIGHT FLYING CAPABILITIES A key issue this fire season was the high intensity of bushfire behaviour which extended after sunset, despite falls in temperature and increasing humidity. This seasons fires remained particularly aggressive due to the very low moisture content of the fuel, which facilitated high fire intensity independent of other atmospheric changes. This particularly became a problem as all RFS aerial firefighting assets are grounded after sunset, leaving firefighters on the ground without this valuable firefighting support. The United States currently operates chinook water bombing aircraft that do have night flying capability. To further reduce risk, they do not have an underslung bucket, instead utilising an internal tank and filler system similar to an Eriksson Sky crane. This night flying capability would be an invaluable asset in not only protecting firefighters on the ground, but enabling them to get the upper hand on fires overnight when conditions are typically more conducive to direct attack and mitigation strategies.

Recommendation – that the RFS investigate and acquire chinook night flying water bomber capability for the next bushfire season

ENGAGEMENT OF DRONE AND UAV CAPABILTIES Early detection and mitigation of bushfires, when executed successfully, can be an extremely effective strategy. Given that a majority of bushfires during the 2019-2020 bushfire season where ignited by lightning strikes in remote areas, early detection of ignition points is particularly important.

The Gospers Mountain Fire, which went on to consume 512,000 hectares of land and a significant number of homes originated from a single ignition point.

In a similar future scenario, a UAV/drone could be dispatched to examine a suspected ignition caused by a lightning strike. After scanning the location, or a broad area where lightning strikes may have occurred, the UAV could determine whether an ignition had taken place, and aerial assets could be rapidly deployed to extinguish the ignition before it grew in size.

This strategic approach could prevent future 'Gospers Mountain' type fires when they are at the earliest stages of ignition. Recommendation – that the RFS investigate and engage UAV/drone capability for the early detection and mitigation of bushfire ignitions.

Darren Rodrigo Katoomba / Leura RFS

1.1 Causes and contributing factors

1.2 Preparation and planning

1.3 Response to bushfires

1.4 Any other matters

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SUBMISSION TO THE NSW INDEPENDENT BUSHFIRE INQUIRY

DARREN RODRIGO – ADVANCED FIREFIGHTER

KATOOMBA / LEURA RURAL FIRE SERVICE

INTRODUCTION

Thank you for the opportunity to make a submission to the NSW Government's Independent Bushfire Inquiry.

This submission is based on my experiences during the historic 2019-20 bushfire season, and as a volunteer firefighter since 1994.

I was deployed with Katoomba / Leura RFS from October 2019 to February 2020 in multiple locations across the state where I had the opportunity to observe the operations of the RFS organisation, individual brigades and individual firefighters over many long hard hours in at times, extremely adverse conditions.

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Many near misses or accidents which have injured or killed firefighters have involved trees falling on vehicle cabins.

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AERIAL FIREFIGHTING NIGHT FLYING CAPABILITIES

A key issue this fire season was the high intensity of bushfire behaviour which extended after sunset, despite falls in temperature and increasing humidity. This seasons fires

remained particularly aggressive due to the very low moisture content of the fuel, which facilitated high fire intensity independent of other atmospheric changes.

This particularly became a problem as all RFS aerial firefighting assets are grounded after sunset, leaving firefighters on the ground without this valuable firefighting support.

The United States currently operates chinook water bombing aircraft that do have night flying capability. To further reduce risk, they do not have an underslung bucket, instead utilising an internal tank and filler system similar to an Eriksson Sky crane.

This night flying capability would be an invaluable asset in not only protecting firefighters on the ground, but enabling them to get the upper hand on fires overnight when conditions are typically more conducive to direct attack and mitigation strategies.

Recommendation – that the RFS investigate and acquire chinook night flying water bomber capability for the next bushfire season

ENGAGEMENT OF DRONE AND UAV CAPABILTIES

Early detection and mitigation of bushfires, when executed successfully, can be an extremely effective strategy. Given that a majority of bushfires during the 2019-2020 bushfire season where ignited by lightning strikes in remote areas, early detection of ignition points is particularly important.

The Gospers Mountain Fire, which went on to consume 512,000 hectares of land and a significant number of homes originated from a single ignition point.

In a similar future scenario, a UAV/drone could be dispatched to examine a suspected ignition caused by a lightning strike. After scanning the location, or a broad area where lightning strikes may have occurred, the UAV could determine whether an ignition had taken place, and aerial assets could be rapidly deployed to extinguish the ignition before it grew in size.

This strategic approach could prevent future 'Gospers Mountain' type fires when they are at the earliest stages of ignition.

Recommendation – that the RFS investigate and engage UAV/drone capability for the early detection and mitigation of bushfire ignitions.

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