

# ***THE VOLUNTEER***

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***Best C.F.S. Brigade—1984***

## REPORT ON F.S.C.C. F.W.P.

(Fire Services Co-ordination Committee Funding Working Party)

*Following the article on the Formation and terms of reference of the Fire Services Co-ordination Committee Funding Working Party' by The Chairman Mr. W. L. C. Davies—in the last issue (volume 23, page 2); 'The Volunteer' will publish over a period of time the developments that have and are being made as a result of the work of the Fire Services Co-ordination committee.*

*The first items to be reported on involve 'The Mutual Aid Plan' and 'J.E.S.F.I.C.' (Joint Emergency Services Fire Intelligence Centre).*

**The Mutual Aid Plan** as referred to in 'The Volunteer' volume 20 page 9 and volume 22 page 5: 'Is a major operational strategy which aims to vastly improve co-operation and co-ordination between the Country Fire Services, the S.A. Metropolitan Fire Service and S.A. Police, in a properly controlled manner for major fires and other emergencies.'

A key element of the committee's work was to devise precise operational procedures to be followed by our emergency services.

The committee's operations working party was headed by the S.A. Police Operations Chief-of-Staff, Senior Chief Superintendent K. L. Thorsen, and consisted of two representatives from each of the C.F.S., M.F.S. and police.

Senior Chief-Superintendent Thorsen: "We had to formulate a predetermined response procedure for the C.F.S., M.F.S. and police which would fully prepare the emergency services to implement a plan of action on days of extreme fire danger and red alert.

Senior Chief-Superintendent Thorsen said the immediate response procedure, adopted by all three arms of emergency services, included the following:

- Pre-determined attendance of C.F.S., M.F.S. and police;
- Fire-fighting procedure, including the establishment of control points (or bases) and the immediate co-ordination of the three services;
- traffic control of strategic roads to ensure ready access for fire appliances, evacuation and movement of public vehicles;
- an integrated communications network for the C.F.S., M.F.S. and police at the fire and between respective communications centres;
- standardised evacuation and other procedures for the safety of residents; and,
- designated safe refuge areas for evacuees.

"These procedures are the result of joint efforts by all three emergency services," said Senior Chief-Superintendent Thorsen.

"The aim is to ensure quick 'first strike' response by fire units to reports of outbreaks so as to reduce the possibility of a dangerous spread of the fire, thereby reducing risk to life and property.

Procedures set down in the Mutual Aid Plan will be applied on all red alert days or at any other time that C.F.S. and M.F.S. staff agree the fire danger potential gives cause for concern.

On those days the State Fire Control Centre at M.F.S. headquarters in Wakefield Street, city, will immediately be staffed to a 'minimal level' by C.F.S., M.F.S. and police personnel trained in gathering, processing, analysing and issuing intelligence. It will be known as **JESFIC (Joint Emergency Services Fire Intelligence Centre)**.

Staffing levels will increase if there is a fire.

The centre will adhere closely to Mutual Aid Plan, evaluating the fire, weather, firefighting resources, traffic, roads, evacuations, refuge points and casualty details.

Its assessments and co-ordinated instructions will be sent to the field.

It is also intended to provide accurate information for the media, which authorities consider vital during emergencies.

Extract courtesy The Advertiser, Police reporter Rob Ball.

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## EDITORIAL



In writing the editorial, I now have the benefit of two months' experience in learning the South Australian way of life, and more especially, the role that the C.F.S. plays in the community.

The two months have passed very quickly; I am pleased to say the reception I have received has been most supportive from all sectors of the community with whom the C.F.S. has to communicate.

I have been able to visit some District Councils and Brigades in Regions 1, 3 and 4 including Kangaroo Island. At the time of writing I have scheduled visits to the pastoral areas of the north and to Regions 5 and 6.

From these visits I have been able to make a reasonable assessment of the way the C.F.S. operates and its current role with the District Councils, Fire Fighting Associations and Volunteer Brigades.

Without pre delivering any policy changes that may be appropriate for the future, it is very apparent that there needs to be greater emphasis placed on training in certain areas, particularly such subjects as personal safety and handling of hazardous substances.

These subjects and other passing items have been discussed with the respective officers, and with the benefits of the use of Brookway Park, the C.F.S. Volunteers can look to an improved training itinerary in the near future.

Whilst on the subject of Brookway Park, I see this facility when further developed (in conjunction with the S.A.M.F.S.) as a training centre equal to any in Australia. Brookway Park will provide a resource centre to enable a high level of training to be readily achieved and the course participants should be well equipped to then assist with training at both Region and Brigade level.

Another main issue which must be addressed is the subsidy system. Irrespective of the outcome of the working party appointed by the Government to advise on the funding of fire services, there is a need to urgently review the machinery of the present system. It is totally inadequate and inefficient for the fire service of the 1980s.

To achieve some rationalisation, as an interim measure I have requested Treasury to guarantee a base level of funds for subsidy payments for the next three years. This will enable priorities to be set and adhered to, thus enabling brigades and councils to plan their financial commitments ahead with confidence. Coupled with this, a review of equipment standards and specifications is being undertaken to enable a more equitable policy to be developed by the C.F.S. Board. In other words, the specifications will be re-drafted to encourage the development and adoption of appliances to a basic standard. Hopefully this standard will attract increased competition in the market place by those in industry who wish to build such appliances.

Most importantly, an issue which must be addressed as the one of greatest importance, is that of fire prevention.

In a State that has suffered the ravages of wild fire on numerous occasions, I see an urgent need to get together those who have land management responsibilities to get community involvement and agreement on a standard of fuel reduction, especially in areas where people choose to live adjacent to, or within the bushland environment.

The fire service must continue to relate to the fire triangle—heat, oxygen and fuel. Without any one of them there can be no fire. As we have no control over the heat or oxygen criteria, then our efforts must look towards "Fuel" as the element we can control. Therefore, fuel reduction is a must if we are to reduce the impact of wild fire in the future.

As you would be no doubt well aware by reading this article, these few issues will take a great deal of my time. I do, however, still request your views and ideas whenever we meet to assist with the future development of the C.F.S.

A. D. MACARTHUR

Director

S.A. Country Fire Services

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## Region 2 & 3 Competitions

### **Note: Change of venue (Mallala)**

Please note the combined Region 2 and 3 C.F.S. Fire Fighting Drill competitions will now be held at Mallala on Sunday, July 21st, 1985.

(venue was previously advised as Mannum)

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Front Cover:

### **Best and Most Efficient C.F.S. Appliance and Crew**

Nuriootpa C.F.S. newly commissioned fire truck 'Nuri 41' will be featured on the C.F.S. Fire-Fighting Drill Certificates for 1985 to acknowledge 'The Best and Most Efficient C.F.S. Appliance and Crew Award,' won by Nuriootpa C.F.S. in 1984.

As a further incentive this year for brigades competing at the regional drills, prize money of \$1,000 will be presented to the State's 'Best and Most Efficient C.F.S. Appliance and Crew' at the state finals, Blackwood Hill Oval on September 22, 1985. The runner-up brigade will receive \$500.

C.F.S. brigades entering this event will be judged on a criteria of points gained from:

- the regional fire-fighting drill competitions.
- an inspection of the brigade appliance(s) and station.
- a practical drill exercise using standard fire-fighting equipment.

The winning brigade judged from each regional competition represents their region at the state championship's 'Best and Most Efficient C.F.S. Appliance and Crew' event.

*Will your brigade receive that honour? Best of luck to all competitors in the forthcoming events ...*  
Editor.

#### **Regional Competitions will be held as follows:**

- Region 5 at Naracoorte on June 30.
- Region 1 at McLaren Flat on July 7.
- Region 2 & 3 (combined) at Mallala on July 21.
- Region 4 at Yongala on August 4.
- Region 7 at Monash on August 18.
- Region 6 at Cleve on September 1.

The C.F.S. Board Competition Committee has **RESOLVED:** 'That the Region Competitions will be conducted and organised on a regional basis with minimal C.F.S. Headquarters involvement.

Headquarters will supply the following resources:—

- Regional officer for Region plus one or two others
- all equipment as before; i.e., control van, cargo van, hose trailers, etc.
- Headquarters Executive Staff to attend as and when possible.

To ensure that Regional Competitions are conducted in an efficient and professional manner, regional officers responsible will see that Regional Competition Committees are in place and able to manage their competitions as independently as possible from headquarters involvement.

The Competitions are to be run in 1985 using the traditional format and traditional events, with the exception of the One Man Hose Drill which will be run in accordance with Rule G1/4/83 of the S.A.C.F.S. Fire Fighting Drill Competitions Rules and Conditions, and that rules numbered G2/4/83 and G2/5/83 be deleted.'

## **NEW WET DRILL—1986**

In 1986 a new Wet Drill Event, now under trial is proposed for inclusion in the C.F.S. Fire Fighting Drill Competitions.

Designed by Blackwood C.F.S. members Ray Collins and Michael Pearce the new wet drill is directed towards correct fire fighting procedures. The drill enables the competition teams to use the hoses and equipment as though at an actual fire.

Blackwood C.F.S. fire fighter Mike Pearce while attending the S.A. vs. N.Z. Fire Drills in February 1985, noted how the New Zealand fire drills were run. On returning to S.A. he designed a hose box (pictured below), with a layout identical to that of a modern fire appliance.



The new wet drill event was first tested at an Inter-council practical training competition where the City of Noarlunga was represented by four units from Port Noarlunga/Moana and 4 units from Morphett Vale/Reynella/Hackham at the Noarlunga Oval on Sunday 19th May, 1985.

The target (pictured below) more accurately relates to a simulated fire. Extra height has been given to each target to keep as much water off the track as possible, and to add to the realism.



Pictured above Colin Chomel, Port Noarlunga/Moana C.F.S. member "hits" the target, during the trials of the wet drill event proposed for C.F.S. Drill Competitions in 1986.

# THE ROLE OF THE S.A.V.F.B.A.

(South Australian Volunteer Fire Brigades Association)

The major role of the Association is to bring together, unite and to represent the Country Fire Service Members throughout the State.

This will be accomplished through the various Fire Fighting Associations within South Australia.

There is a need for the Volunteers to have an input into the control and operation of our Fire Service. Members will be encouraged to take a greater interest and participate more in their Fire Fighting Association.

## PROBLEMS ENCOUNTERED

Some of the problems we have encountered in the past were:

1. Lack of Communication between all facets of the Country Fire Service.
2. Representatives of Fire Fighting Associations have come together for a State Conference once a year to discuss their problems and there was no investigation and follow-up of these matters between Annual Meetings.
3. Some Associations meet only once a year, and their Delegates attending the State Conference had to wait almost 12 months to report back to their respective Associations.
4. Associations had no interaction other than at the Annual Conference.
5. Several times in the last few years there has been a need to call together Associations to discuss major issues. (such as the Arthur Young Report).
6. The Country Fire Service Board or any Government Department had no way of making a formal approach to the Volunteers other than the State Conference.
7. The Volunteer Fire Brigades Associations from other States did not have a similar Organisation to make contact within this State.
8. There are a great number of variations in the Membership and structure of Fire Fighting Associations, some have very little input from the Volunteer Country Fire Service Members and rely mainly on Local Government representation.

## WHAT IS THE SOUTH AUSTRALIAN VOLUNTEER FIRE BRIGADES ASSOCIATION DOING TO HELP OVERCOME SOME OF THESE PROBLEMS???

- A. An Executive has been formed consisting of Mr Frank Miller of Lameroo, (Vice-President), Mr Graham Koch of Bordertown, (Secretary) and myself and we have met on several occasions since last year's State Conference.

- B. An Advisory Committee has been established with each Association asked to Nominate a Representative. The Associations represented and the Delegates who attended the Advisory Committee meeting were:

North Eastern F.F.A.	Mr K. Treloar
Eyre Peninsula F.F.A.	Mr L. Murray
Northern F.F.A.	Mr A. McInnes
Eastern Districts F.F.A.	Mr D. Lord
Lower North F.F.A.	Mr W. Parker
Eastern Murray & Riverland F.F.A.	Mr M. Arnold
Barossa Ranges F.F.A.	Mr R. Schlein
Mt. Lofty Ranges F.F.A.	Mr D. McGowan
Upper South East F.F.A.	Mr D. Elliott
Kangaroo Island F.F.A.	Mr J. Downing
South Eastern F.F.A.	Mr B. Vogal
Lower South East F.F.A.	Mr T. Rymill

- C. The Executive and most of the above Members have had the opportunity of meeting with Mr A. D. Macarthur our new Director.
- D. To assist Delegates in reporting back to their respective Associations and the Volunteers in the field, a section of "The Volunteer" will be 'reserved' for reports on the Volunteer Fire Brigades Association activities.
- E. It is anticipated that the Executive and the Advisory Committee of the Association will meet on a regular basis.
- F. The Volunteers, through the Volunteer Fire Brigades Association have a direct input into several Advisory Committees established by the Country Fire Service Board.
- These Advisory Committees include:
- Competition
  - Training
  - Technical
  - Occupational Safety & Health
  - Communications
- G. It is important that the Fire Fighting Associations direct their problems, recommendations or queries through the State Association.

Hoping this will help to explain some of the queries in relation to the Association. If you require any further information do not hesitate to contact your Association Delegate or any Member of our Executive.

Remember we are here to serve you, the Volunteers, and the strength of this Organisation is in the hands of Volunteer Members of the Country Fire Service of South Australia.

P. J. SWANN  
PRESIDENT

## ONLY CFS FIRE FIGHTERS PASS

(Institution of Fire Engineers Exams)

Our congratulations to the only persons to pass the Institution of Fire Engineers Examinations this year.

David McGowan, M.I.Fire.E. of Basket Range C.F.S.

Tony Weiderman, Grad.I.Fire.E. of Burnside C.F.S.

David passed the senior examination to Membership and Tony passed the examination to become a Graduate. Considering other candidates in the examination were professional fire fighters, or employees from the fire safety industry, David and Tony have set a fine example to all of us.

*In examinations, "Luck Favours The Well Prepared!" Well done indeed gentlemen . . . Editor*

## C.A.B.A.—women graduates

Readers of the last issue, "The Volunteer" Volume 23 would have noted the article "Unmasking a new challenge(r) (Page 26) in which C.F.S. members Jan Smith, Littlehampton C.F.S. and Fern Raintree of Nairne C.F.S. were credited with successfully completing a C.F.S. Breathing Apparatus course at the Mount Lofty Training Centre.

The Volunteer also acknowledges B.A. course graduates Kim Paget, Deidre Middlehurst and Gayle Voordouw of Aldinga Beach C.F.S., Cheryell May (Mrs R.O. 6)—former Aldinga Beach C.F.S. member and Marigail Grant of Aldgate C.F.S. and Georgina Sutton of Burnside C.F.S. who qualified at an earlier C.F.S. Breathing Apparatus course.

*Congratulations ladies, well done . . . Editor.*

## REGIONAL TRAINING SCHOOL (BROOKWAY PARK) STAGE 1—COURSE ATTENDEES



Front row: from left—Mike Taliangis (Happy Valley), Chris Pazera (Aldgate), Andrew Tuck (McLaren Vale), Vince Monterola (Stirling), Michael Sard (Eden Hills), Len Wright (Gawler River), Kym Pedler (McLaren Vale).

Centre row (sitting): from left—Geoff Roocke (Eden Hills), Barry Wagenknecht (Mt. Barker), Scott Sellick (Eden Hills), Steven Chilton (Eden Hills), Tony Philp (Parawa), Michael (Mike) Watts (Happy Valley).

Back row: from left—R.O. Russell Grear (H/Q instructor, R.O. 1), Robert Cock (Blackwood), Peter Barhey (Blackfellows Creek), John Long (Meadows), David Foreman (Meadows), Gary Candy (Meadows), Mark Pointon (Belair), Greg Crawford (Yankallila), Andrew Scadding (Blackfellows Creek) and Assist R.O. David Pearce (Assist R.O. 1 and instructor).

The Region 1 C.F.S. Stage 1 Training School was held on 4th and 5th May, 1985 at Brookway Park, Campbelltown.

## E.F.S. MANUALS

**Country Fire Services Headquarters has a surplus stock of E.F.S. manuals.**

Should any C.F.S. member require copies of these manuals enquiries are to be made through C.F.S. H/Q Control Centre—contact C.C.O. Brian Bilney.

The manuals will be issued on the basis of "first come first served" and can be collected either:

1, from C.F.S. H/Q by prior arrangement.

or

2, by delivery to your brigade by the regional officer when he visits your area.

The following E.F.S. manuals are available: 1966, 68, 69, 70, 71, 72, 73, 74, 75, 76 and 1977.

## THE VOLUNTEER

A *limited* number of early editions of "The Volunteer" are also available and arrangements for collection of journals will apply as for above.

## TO ALL VOLUNTEER MEMBERS OF COUNTRY FIRE SERVICES BRIGADES

Dear Member,

Country Fire Services Headquarters has received an increased number of complaints from C.F.S. volunteer fire fighters who have not received their entitled free copy of the quarterly journal "The Volunteer".

A limited number of copies of "The Volunteer" are published quarterly, with *each member* of each C.F.S. Brigade being entitled to a *free copy*.

Our records indicate that "The Volunteer" is posted to the requested recipient of all mail for each brigade. Therefore, members of Country Fire Services Brigades who have any queries regarding receipt of their *free* copies of "The Volunteer" should check with either their Brigade Secretary, President, or Captain, i.e., the person to whom all mail is directed.

It is requested that the recipients of "The Volunteer" *distribute* same to their members *within 2 weeks of receipt* because of the timely information contained in each quarterly publication.

Should your Brigade not receive sufficient copies to distribute to each member, or maybe you have received more copies than members require, please advise:

The Receptionist or Publicity Officer  
at

S.A. Country Fire Services Headquarters,  
P.O. Box 312,  
GOODWOOD. S.A. 5034, or,  
Telephone: (08) 297 6788

Upon your advice we will in future forward the quantity of copies of "The Volunteer" you request.

We also ask members and readers to forward any comments or ideas they may have on the format of "The Volunteer" and invite contributions in the form of articles or stories for insertion in future issues. The deadline for copy always closes on the first Monday of the month prior to the month of issue.

Yours sincerely,

A. D. MACARTHUR  
Director  
Country Fire Services

## ACCEPTANCE TESTS FOR ALL FIRE APPLIANCES

It has been C.F.S. Board policy for sometime to ensure that fire appliance manufacturers maintain an acceptable standard of equipment and workmanship as per: "C.F.S. BOARD SPECIFICATIONS TYPES 1 TO 5 (issue 2-1984)".

The C.F.S. Headquarters Appliance and Equipment Officer carries out an "Acceptance Test" on *all* fire appliances whether built by fire appliance manufacturers, privately or by volunteer labour *before* subsidy payment can be approved.

Should appliances not meet with C.F.S. Board specifications subsidy payments may be withheld, until specifications are met.



Pictured above representatives of A. J. Stock, appliance body builders of Campbelltown with Assistant R.O. David Pearce (Assist./R.O. 1 and acting Appliance and Equipment Officer—picture left) commence an acceptance test on Tintinara's new fire truck, at C.F.S. H/Q.

## Spare Parts Now Available

### MAGIRUS PORTABLE PUMPS

**Country Fire Services Headquarters has stock of spare parts for most models of Magirus pumps.**

Because C.F.S. records showed that 70 pumps were still in operation in South Australia, C.F.S. Headquarters purchased the entire spare parts stock for Magirus pumps from Wormald International in Adelaide, prior to the transfer of Wormald's spare parts division to Melbourne.

In future *all* spare parts for most models of Magirus pumps, with the exception of motors, can be obtained from Country Fire Services Headquarters Supply Officer Mr. Dave Critchley or Mr. Michael Knowles Phone (08) 297 6788 for further information.

## ESCAPE FROM FIRE FAST

by R.O. Mike Gent, Fire Prevention

**In structures, how long have you got from the time fire starts, to get out?**

In the recent harrowing scenes on TV of a fire in a sports stand at Bradford U.K. the whole structure was involved in under 4 minutes. Any person still inside at the end of 2 minutes had little chance of escape. The radiated heat was setting fire to people's hair and clothing 20-30 metres from the fire. Sufficient exits were provided, but they were locked against unauthorised entry, a common problem even in the local institute hall holding a play.

It was apparent to me with the Bradford fire, as it has been on many other occasions, that the, "it can't happen to me" syndrome was there and few people moved quickly enough to escape.

Let's learn the lesson ourselves and teach it to our children. When fire starts, move fast, like a swimmer with a shark nearby . . . but orderly. Raise the alarm, evacuate and only fight if safe to do so.

My original question was, "how long have you got from the time fire starts, to get out?"

The answer could be as little as 10 seconds if you are working in a spray booth, 2 seconds in an explosives factory! Generally 2 minutes, to either get to a place of safety (protected corridor or stair) before proceeding from that place of safety to outside, which must be away from radiated heat. It is accepted that you may have 3 minutes in a non combustible building with few or no combustible furnishings, so around 2½ minutes is a reasonable average.

Much will depend on how the fire starts, slow smoulder in a place with little air before flashover occurs, or, as with the Bradford fire a small fire in a very well ventilated place.

Whilst our sympathy goes out to the bereaved of Bradford and our best wishes to those recovering from burns, let us learn from the terrible experience of those who died.

They will not have died for nothing, if we learn to survive.

A word of warning for those Brigades who on receiving a fire call, go to have a look in a private car before turning out a crew, would you do it if you heard your house was on fire?

## FIRE STOPPERS

TRAVEL THRU THIS MAZE AND EXTINGUISH THIS BALL OF FLAMES BY USING ALL SIX OF THE FIRE STOPPERS. YOU MUST BEGIN AND FINISH THIS TASK ON THE TWO SPOTS AT THE BASE OF THE FLAMES.

DURING YOUR JOURNEY NO PASSAGE MAY BE USED MORE THAN ONCE.

(• Reproduced courtesy Ryan Game Company 1976).



## Will Your house survive a bushfire?

This is a question every new home buyer, architect and builder should be asking at this time of year about houses being built in Australia's bushfire-prone areas.

Preliminary analysis of the Division's survey of 1200 houses in the Otways Ranges fire in Victoria on 16th February (Ash Wednesday), 1983 has yielded some interesting results.

- Houses clad in clay brick, or concrete bricks or blocks, appeared to survive better than timber or asbestos-cement clad houses. This may relate more to the style of the house (on-ground or above-ground) than to the cladding material. However, the colour of the cladding did not appear to affect the survival.
- Houses with steel-deck roofs survived more often than those with corrugated iron or asbestos-cement roofs.
- The amount and type of vegetation around the houses was an important factor. The survival rate decreased as the vegetation became thicker.
- People played a significant role in the survival of houses by extinguishing small ignitions before they become unmanageable. In many cases they were able to do this on returning to houses some hours after the fire front had passed.
- The survey has found no authentic cases of houses spontaneously exploding due to the heat of the fire-front. Conflagration from the build-up of many small fires in a house, and/or the action of the high winds accompanying the fires may explain the observations made by some people.
- There were 3 possible means by which houses ignited during the fires—radiation, direct flame contact, and embers lodging on combustible material. Ignition by embers appeared to be the main cause. Embers can enter a house through broken windows or gaps in and around the wall or roof cladding, and then ignite the contents. Embers lodge on and ignite horizontal timber in decks, steps and window sills, or are blown-up against and ignite timber used at ground level for stumps, gap-boards, posts and steps.
- Radiation may crack windows allowing ember entry. It may heat the building and contents, facilitating ignition by embers or flame and, in extreme cases, ignite combustible contents near windows or external timber. Evidence for flame contact is difficult to find, and charred wood may be the result of radiation or the ignition of vegetation growing against a house. Even if a house is not built with bushfire survival in mind, researchers at the Division of Building Research recommend some simple retrofit measures to improve its chances of survival, make it easier to defend, and a safer refuge.
- Protect all external openings—windows, doors, vents and chimneys—with metal flywire screens (preferably on the exterior). Window shutters are a very desirable extra because they cut out radiant heat, embers, and flying debris.
- Seal up all exterior gaps to stop embers entering. This means checking walls, eaves and roofs and around doors and windows.
- Enclose under-floor areas with non-combustible materials or at least with metal flywire to keep out embers from under the house or from lodging against combustibles at ground level.
- All timber used externally should be checked for cracks and rot and filled and/or painted to provide as smooth a surface as possible. This will reduce the chances of ignition, especially by embers.
- Check that your roof is securely fixed and in good condition. High winds often accompany bushfires and lift off the roofing, exposing the contents to fire.
- Gas bottles should be shifted to a cleared area some metres from the house, set on a concrete base and fixed to a strong metal pipe.
- Install adequate supplementary water supply, either gravity fed or fitted with a diesel pump.
- Stock up your laundry (or other convenient room) with fire fighting gear—wool clothes, mops, buckets, sprays, and hoses.

- Lay gravel or paving around the house perimeter to provide a 'break'.
- Remove branches overhanging the roof, bushes growing against the walls, excessive undergrowth beneath the trees, accumulated leaves, and other combustible material. Make sure your wood heap is either in an out-building or well away from the house.

Unfortunately, homeowners are often reluctant to incorporate building advice for improving the survival of houses being rebuilt in the fire-prone areas. It is our researchers' opinion that homeowners have not learnt the lessons of the 'Ash Wednesday' bushfires. In this respect, the new housing stock could fare just as badly in the next major bushfire.

Article reproduced courtesy C.S.I.R.O. Newsletter "REBUILD" (C.S.I.R.O. Division of Building Research), Volume 9, Number 6, December 1984.

### *Factors affecting house survival*

A forestry researcher with the University of Melbourne, Mr Andrew Wilson has developed a system where houses in high-fire risk areas can be rated on their chance of survival.

Mr Wilson's report is based on a survey of 450 houses caught in the Ash Wednesday II bushfires at Victoria's Mount Macedon.

A key finding in Mr Wilson's report is the survival rate of houses occupied by residents during the 1983 Ash Wednesday II bushfires.

The survival rate of houses "actively defended" by residents was 90%, and only 30% of houses evacuated *were not* destroyed.

But the most important factor is fire intensity, depending on the concentration of ground fuel—dead leaves, twigs, and dry grass around the house.

Findings from the report show that "reducing ground fuel around a house by 50% can reduce fire intensity by 75% and reducing the fuel load by 90% can reduce the fire intensity by 99%."

Other hazard factors used to predict house survival were—wall material, roof material and pitch, the proximity of flammable materials, height of garden vegetation and presence of trees within 40 metres of the house.

According to these factors and a list of hazard scores, houses can be rated as to their chances of survival.

The slope of the ground on which a house is built is significant. "An increase of 10 degrees in a slope doubles fire intensity, and it is quadrupled when the slope is increased 20 degrees. Decreasing the slope to cause it to slope downwards by 10 degrees halves the fire intensity, while a slope of 20 degrees quarters the intensity," reported Mr Wilson.

"A brick house with a tiled or flat roof and minimal ground fuel for a radius of about 50 metres, has the best chance of survival."

Mr Wilson stated that the presence of tall trees at a safe distance around the house is not of critical importance and only reduces chances of house survival by a small amount.

"We don't have all the reasons, but we have taken a tremendous step forward and, as a consequence, we can now go into fire-prone areas and state the survival chances of particular houses," said Mr Wilson.

#### REFERENCES:

- <sup>1</sup> NCRFR (Chisholm Institute of Technology) Technical Paper No. 6. "Assessing the Bushfire Hazard of Houses: A Quantitative Approach" by A. A. G. Wilson.
- <sup>2</sup> NCRFR Technical Paper No. 3. "A Study of the Effect of Household Occupancy during the Ash Wednesday Bushfire in Upper Beaconsfield, Victoria, February 1983" by G. Lazarus and J. Elley.

## CSIRO to study bushfires

Canberra: The CSIRO will set up a National Bushfire Research Unit, but the unit may close within 3 years if Government and industry do not provide enough funds for applied research.

The unit is expected to start operations in July and will have a staff of 12.

It will undertake both "core" research on the fundamental characteristics of Australian bushfires, as well as doing applied research on fire control and prevention.

The lack of financial support for bushfire research in Australia was criticised harshly by CSIRO Division of Forest Research chief, Dr Joe Landsberg, when he announced the formation of the research unit in Canberra.

Dr Landsberg said the CSIRO was prepared to spend about \$500,000 a year on the unit, despite cuts to the CSIRO's budget last year, but was looking for a further \$300,000 a year from outside sources.

"The funding needed is miniscule by comparison with the human and financial losses and environmental damage caused by Australia's bushfires, while the savings generated by this kind of research investment should be enormous," he said.

The S.A. Country Fire Service has indicated its willingness to give \$20,000 to the research unit this year and Elders IXL Limited intends to supply \$50,000.

The CSIRO has contacted other groups for support, but with mixed success.

Dr Landsberg said that if after 3 years the CSIRO had not been able to attract this level of outside funding then the unit would probably be disbanded.

The National Bushfire Research Unit plans to study fire behaviour in detail, economic effects of bushfires, fire ecology, health and dangers to fire fighters and an improved fire weather danger index, as well as analysing and developing fire management systems and developing and managing a central data bank of bushfire information.

Based in Canberra, the unit will study fires throughout Australia.

One of its first projects will be to study grassfires in S.A. and the Northern Territory.

A notable feature of the unit will be its availability for fully contracted research, and its ability to let contracts to other bodies to do research.

It will maintain close contact with State bodies and will be available for on-site advice and post-fire investigations.

The new unit is expected to draw on the results and experience of the CSIRO's project *Acquarius*, which finished earlier this year, and the recently disbanded National Centre for Rural Fire Research at the Chisholm Institute of Technology in Melbourne.

### *"Self help best bushfire protection"*

## **FREE ADVICE BOOKLET OUT NOW**

People must help themselves if they want to protect their property *and* survive bushfires.

For those living in high fire risk areas, there are 3 main points that must be considered:

1. Siting and layout of buildings.
2. Building design and construction.
- and 3. Landscaping for fire protection.

Information on practical guidelines for siting, design, construction and landscaping of buildings in bushfire prone areas of South Australia, can be obtained in the *free* booklet: "Building for Bushfire Safety"—which is still available from C.F.S. H/Q, C.F.S. Regional H/Q or from The Department of Environment and Planning.

These guidelines relate to buildings on farms and larger rural allotments and to rural-urban areas where allotments are small and set in thick vegetation.

This booklet has been prepared for new development but, the principles are applicable to existing buildings and properties—for developing protection strategies.

## A few minutes a day prevent crop fires

**A brochure advising grain growers how to prevent crop fires during summer has been released by International Harvester.**

Entitled "**. . . a few minutes a day . . . CROP FIRE PREVENTION**" the coloured brochure highlights the dangers of operating all types of machinery in tinder-dry crops, especially on days of extreme fire danger.

The advice on fire prevention comes from a world expert on grain harvesting machinery, Leo Spicer.

The advice is based on an actual incident in 1983 in Victoria, when more than 550 ha of prime, 24-bag crop was destroyed in a blaze believed to have been started by a header.

In the brochure, Mr Spicer advises farmers to do a daily **walkaround** of their harvesting machinery to look for potentially dangerous faults.

These include trash and crop "flag" build-up in areas where it can drop on to overheated parts, ignite and fall into the crop. Worn belts which catch fire, poorly lubricated bearings which can overheat and ill-adjusted hand-brakes—again a potential source of overheating.

The Victorian fire is believed to have started when trash build up fell onto a red-hot hand brake assembly which had been left partly on during stripping. The blaze started when the operator stopped to refuel.

Other common sense hints cover exhaust systems which should be 100% secure and efficient. That goes as much for the farm ute and grain truck as it does for the header or tractor and don't forget the small engines on grain augers.

Knapsacks and other fire prevention equipment should be fully charged and in good working condition.

All vehicles should be parked in a cleared area, preferably on clear ground.

P.T.O. and other bearings should be checked regularly and shaft monitoring systems should never be turned off. Faults should be corrected straight away and the reed switch-to-magnet distance should be checked and adjusted regularly.

Be very careful where and how refuelling is carried out. Locate fuelling points in cleared, preferably bare areas.

Fuel and oil should not be spilt on the machinery, if they are, and not wiped off, they will gather dust and trash.

The brochure also advises cutting a break around the crop *at least* the width of a scarifier (or disc plough) then at least a back-burn can be started if the worst happens.

Finally **keep your eyes open**, look behind the machinery constantly for outbreaks, watch your neighbours property—particularly up wind and give immediate warning should a fire start.

**Brochures can be obtained from International Harvester Agricultural Dealerships.**

# Call for effective bushfire guide

Reporter Robert Ball  
The Advertiser

**Proposed regulations for buildings in bushfire areas should be accompanied by a guide on how to comply with them, speakers at a seminar said, on Monday 6th May 1985.**

The seminar, at the Country Fire Service headquarters, made a number of recommendations to the Government Building Advisory Committee on the draft regulations drawn up following the Ash Wednesday fires.

The proposals will give local councils in bushfire-prone areas more control over the siting, layout and design of buildings.

The S.A. president of the Building Science Forum of Australia Ltd, Mr D. A. Ness, said there had been "mixed feelings" about the draft.

There had been a lot of discussion about compliance with the regulations which, for example, stated that doors should have "approved seals."

However, there was no explanation of what was an approved seal.

Participants had thought such matters should be explained in an accompanying compliance guide.

Others had questioned the need for regulations, and many had felt they would be ineffective without first outlining to authorities and householders the principles of protecting buildings in bushfires.

Regulations alone could not provide protection, they had said.

It was also stated that there needed to be more research into such aspects as the immensely strong winds generated in fires.

Questions had also been raised about the liability of councils and householders under the regulations.

About 50 people from local government, fire authorities and the public attended the seminar.

## Farewell Nat Cooke



**Mr N. J. (Nat) Cooke, former Country Fire Services Superintendent of Administration, has been appointed to the position of Deputy Director of State Emergency Services, South Australia.**

Nat was one of the last remaining few former E.F.S. officers still with C.F.S. Headquarters. He served with the S.A. Police Force from 1965, was appointed to the Emergency Fire Service in 1972 as Assistant to the Director and became the C.F.S. Administration Officer in 1978. This title was later changed to Superintendent of Administration.

As secretary and member of the S.A. division of the Australian Fire Protection Association, Nat Cooke was strongly instrumental in developing programs suitable for inclusion in the annual Fire Prevention Week. He also served in an advisory capacity to the C.F.S. Board, was former Chairman of the Fire Prevention Week Committee and is an officer in the Army Reserve.

Deputy Director S.E.S. Nat Cooke's new vocation covers administration of the S.E.S., involving assisting in operational activities, development of counter disaster plans, research, field training, evaluation of new products, and co-ordination of training programmes.

*Nat, Country Fire Services friends and colleagues convey their best wishes both to your self and your wife Kay, and children and thank you for your dedication and valued contribution to the C.F.S. throughout the years.*



## OBITUARY

**Mr. A. J. (Bert) COPELAND**  
Lenswood/Forest Range C.F.S.

The Volunteer pays tribute to the memory of Mr. A. J. Copeland, who passed away on 21st December 1984.

Mr. Copeland was an active community worker in the Lenswood/Forest Range district.

He was the first life member of the Lenswood/Forest Range C.F.S. and is recognised as having been an early "prime mover" with the brigade.

Mr. Copeland served as C.F.S. president for 20 years and also for 20 years (1958-78) was an Onkaparinga Councillor.

A highly respected community member Bert Copeland is sadly missed by fellow C.F.S. members and friends.

## For Sale by Tender

1971 Nissan Patrol 4 wheel drive fire unit  
Registration No RDK-090

Unit in fair condition and is equipped with the following:

6 h.p. (approx) Wisconsin Motor

Rex Pump

150 gallon water tank

3/4" hose reel with approx 30 m of hose

3 side hoses

Front and rear wheel sprays

Tenders should be lodged with the District Clerk, District Council of Kanyaka-Quorn, P.O. Box 43, Quorn, S.A. 5433.

**NOT LATER THAN FRIDAY 5TH JULY, 1985.**

Inspection can be arranged by contacting the undersigned

(Tel: (086) 48 6031)

David Knox

District Clerk

## DO YOU STILL WISH TO RECEIVE THE VOLUNTEER?

*The C.F.S. has issued the following letter to all subscribers of "The Volunteer", excluding C.F.S. Brigades, Councils, Fire Fighting Associations, Co-emergency service organisations, Government Bodies and Interstate Fire Services.*

"Our records indicate that for some time you have been on our free distribution list for "The Volunteer", the official quarterly journal published by the Country Fire Services.

## DO YOU STILL WISH TO CONTINUE TO RECEIVE THIS PUBLICATION?

Should you wish to remain on the free distribution list for "The Volunteer", it is imperative that you advise:

The Publicity Officer

S.A. Country Fire Services Headquarters,

P.O. Box 312,

GOODWOOD, S.A. 5034

If we do not receive your reply, it will be assumed that you no longer require the free quarterly issue of "The Volunteer", whereupon your name will be removed from the distribution list as of 23rd July 1985."

Your sincerely,

A. D. MACARTHUR

Director

Country Fire Services

## MUTUAL AID

On Saturday 6th April, 1984 (Easter Saturday) owing to massive demands made on the S.A. Metropolitan Fire Service appliances and manpower at the Torrens Island Power Station fire, under the "Mutual Aid Plan" 2 C.F.S. Type 1 appliances were called to stand by at M.F.S. Headquarters in Wakefield Street, Adelaide.



A C.F.S. H/Q liaison officer with 1 appliance each from Burnside and Eden Hills C.F.S. responded. They remained on duty from 0130 to 0400 hours.

The same C.F.S. appliances and crew were invited to attend the official opening of S.A. Metropolitan Fire Service Headquarters \$15.9m fire station, on Thursday 23rd May 1985.

The program involved a parade of 20 historic and modern fire appliances, demonstrations by fire fighters, recruits, auxiliary fire crews, C.F.S., St. John Ambulance and S.A. Police, and an open inspection of the modern facilities.

In an address given by the Hon. Jack Wright, M.P. Deputy Premier and Minister of Emergency Services, Mr. Wright spoke of the developments that have been made as a result of the work of the Fire Services Co-ordination Committee.

"We have seen the establishment of a mutual aid plan which sets out explicitly the roles of the M.F.S., the C.F.S. and the Police in case of emergency.

"This plan includes a streamlining and upgrading of the communications facilities between each arm of the emergency services", said Mr Wright.

"Other improvements include the establishment of a new intelligence centre at M.F.S. H/Q for use by the emergency services, and improvement on accuracy of information being made available to the public during times of an emergency. Work is also being done on reducing fire hazards both in the inner and outer metropolitan areas, in order to minimize the damage caused by fires, and a comprehensive campaign against fire hazards is proposed."

"A major step forward over the past 12 months has been the establishment of joint training facilities for M.F.S. officers and C.F.S. volunteers.

We now have people from both services training together and getting to know each others problems, which can only improve the efficiency of both services and the co-operation between the services", Mr. Wright reported.



Pictured above brigade members from Burnside and Eden Hills demonstrate their fire power at S.A. M.F.S. H/Q opening ceremony.

## Interservice B.A. Instructors Course

In line with the Mutual Aid Plan of greater co-operation between the S.A. Metropolitan Fire Service and Country Fire Services Regional Officers Kevin May (R.O.6), Tony Secker (Assist R.O.6) and David Pearce (Asst R.O.1) were invited to attend the first B.A. Instructors Course at the new training wing at S.A.M.F.S. Headquarters from 27th May to 7th June, 1985.

Experience was gained by all who participated. The three C.F.S. officers were presented with certificates at the completion of the course.

The Breathing Apparatus training wing at S.A.M.F.S. Headquarters is a modern well laid out complex. In designing the 'smoke house complex' comparisons were made with England's facilities and also the Fiskville (Victoria) training centre. This section of the training wing has the versatility to be altered internally to a large number of variations of building layouts, right through to a ship's hold complete with water tight type doors and a hatch cover on the roof. The realism of entering this building full of smoke with the temperature raised to 40-50 degrees C and the humidity as high as 95% gave all trainees a taste of being in such a situation during the course of duty.

*The C.F.S. personnel involved have asked that their appreciation be conveyed to S.A.M.F.S. for the hospitality extended to them by the S.A.M.F.S. officers on the course.*

# REGIONAL NEWS

## Region 1

R.O. Russell Gear  
Assist R.O. David Pearce

### New Tanker in the Field



Hindmarsh Valley C.F.S. new water tanker pictured above built up by Carey Gully Engineering has a 9,000 litre tank and a Darley H.M. 500 pump.



Pictured above control panel for the Darley pump.



The prime mover, a Ford Louisville with a caterpillar motor and 13 speed road ranger gearbox was allocated to Hindmarsh Valley C.F.S. by the District Council of Victor Harbour. Local fund raising has contributed greatly to the build up of this fire appliance.

The tankers purpose is to back up small fast attack vehicles throughout the district.

## Region 3

R.O. David Batten

### School

A Stage 2 C.F.S. Fire Fighters Training School was held at Viconn Bay on 24th, 25th and 26th May, 1985 for C.F.S. brigade members on Kangaroo Island. R.O. David Batten was assisted by course instructors Chris Martin late of the Ardrossan C.F.S. and Peter Bartram of Edithburgh C.F.S.

### Director's Visit

C.F.S. Director Mr. A. D. (Donald) Macarthur paid a visit to Kangaroo Island on 27th and 28th May 1985, and met with officials from the Kingscote and Dudley District Councils and members of C.F.S. brigades.

Accompanied by the C.F.S. Manager of Support Services Mr. A. R. Marrett and R.O. David Batten (R.O.3) Mr. Macarthur said that his visit to the Island was an ideal opportunity to have face-to-face discussions about the issues as seen by the Islanders and to become familiar with the Island environment from a fire protection view point.

*continued page 13*

## DEATH BY MISADVENTURE

**There is nothing more heartbreaking for any fireman in Australia to attend a fire, and during the course of putting it out find the charred remains of a person. It's even more distressing when the charred remains are that of a child.**

Even the toughest of firemen have had to walk away with tears in their eyes. Although they attend hundreds of fires, it's this type that lingers in their minds for a long time.

And, it seems strange that the major cause of accidental fires is caused by children playing with matches or cigarette lighters. You may ask why we say it's strange? The answer is simple. One would have thought that adults would be sensible enough to educate children properly of these dangers and, at the same time, not leave any temptation in their way.

Sadly, this is not so!

The Insurance Council of Australia recently surveyed Fire Brigades Australia wide in an attempt to find out how serious the problem of accidental fires is.

Of the 7 States surveyed only 3 were in a position to give statistical details.

But figures from these 3 States are alarming and spell out a very clear and urgent need for all of us to take proper care and guard against fire in the home.

The figures also spell out the need for parents to educate their children adequately against playing with matches and lighters and not leaving them in reach of curious little hands . . . hands which could be, along with the rest of their body, scarred for life.

The second main cause of accidental fires in the home is over cooking or spillage of fats and oils on stoves.

Left unattended for even a minute, these rather innocent looking pots can bring about tragic results.

Education against such disasters must start in the home; sensible precautions, proper education of children and the community in general.

Extract courtesy I.C.A. Bulletin, January 1985.

# REGIONAL NEWS

## Region 5

R.O. Murray Sherwell  
Assist R.O. Andy Lawson

### Survey team fire conscious

A seismic oil survey team from Geophysical Service Inc., are acting responsibly in the South East, being fully committed to fire prevention and suppression.

This commitment was demonstrated to Assist R.O. Andy Lawson (Region 5) on Wednesday 20th February 1985, while working west of Lucindale.



Their main fire fighting unit consists of a 4 wheel drive heavy truck with 1200 gallons of water and a small fire pump.

The area over which the trucks operated was slashed to a width of 14 feet. Each unit carries a portable water spray and shovel. While working on the \* line the men were not permitted to smoke as an added precaution against fire.

Each night the men would return to a base camp which consisted of a circle of ATCO portable buildings. Around the base camp a double fire break was ploughed and a small land cruiser unit with 200 gallons of water and pump was kept on site. The water supply for the camp (1200 gallons on a large truck) was also available for fire fighting, if needed, and all accommodation blocks were provided with portable water sprays and fire extinguishers.

\* A 4 km straight line along which the seismic sensors were placed at 1 m intervals to detect the vibrations returning from the earth, indicating the structure below the surface.

### Firemen's Ball

C.F.S. members are invited to attend Coonalpyn's Firemen's Ball at the Coonalpyn Hall on Friday 4th October 1985.

The ball is to be held to raise funds for purchase of a new unit, as replacement for their old C.F.S. Bedford fire truck.

### Family day

A Corporate Cup Family Fun Events Day will be held on Sunday 6th October on the Coonalpyn Oval.

Activities will involve: tug of war, volley ball, boat races and much more.

## Region 5 continued . . .

### Glencoe C.F.S.



Through community support, generous assistance from Apex and volunteer labour the Glencoe C.F.S. fire unit damaged in the Ash Wednesday II bushfires was re-built (pictured above) and was proudly re-commissioned before Apex members and children of the Glencoe Area School.

### C.F.S. Regional Drill Contest at Naracoorte

The first regional competition for the Country Fire Services 1985 Fire Fighting Drill Championships will be held at the Naracoorte Showground on Sunday, June 30.

The Region 5 Competitions will embrace C.F.S. units from the South-East who will be seeking the right to represent their region at the State Championships at Blackwood Hill Oval on Sunday, September 22.

A parade at 12.00 noon will signal the commencement of the Naracoorte Competitions, with a welcome speech given by the Naracoorte C.F.S. Group Captain, John Jacob. The Mayor of the Corporation of Naracoorte, Mr. Neil Smith, will officially open the competitions.

Presentation of trophies timed for 4.00 p.m. will be made by the Chairman of the District Council of Naracoorte, Mr. Lloyd Williams.

Visiting teams are expected from Adelaide Hills C.F.S. Brigades. Organising the day is the Naracoorte C.F.S. Lieutenant, Chris Rendel, as the Liaison Officer. The local brigade is being assisted by the Naracoorte C.F.S. Women's Auxiliary, Girl Guides, Schweppes Australia, and the Kincaig Hotel, with the catering arrangements.

The Naracoorte C.F.S. new 4 wheel drive Isuzu fire appliance will be officially commissioned by C.F.S. Director, Mr. A. D. (Donald) Macarthur, during the competitions.

C.F.S. brigades are expected to enter for both the team and individual competitor events which include the Four Man Wet Ladder Drill, the spectacular Portable Pump Alarm Race, 'A' Grade Dry Hose and Wet Drill Regional Championship, 'B' Grade Dry Hose Drill, 'C' Grade Dry Hose Drill, One Man Ladder Drill and the One Man Hose Drill.

Regional Officer Murray Sherwell (R.O.5) said that in this year's competitions regional winners for the Best and Most Efficient Appliance and Crew Competition would be eligible to compete for \$1,000 in prize money as the 'State's Best'. The runner-up brigade for the 'Best and Most Efficient C.F.S. Appliance and Crew' for 1985 would receive \$500.

The "C" Grade Dry Hose Drill which gives encouragement to cadets, will also carry prizes for regional winners and a perpetual trophy for the fastest cadet team in the State Championships', he said.

'Also, teams participating in the "B" Grade Dry Hose Drill will be encouraged to run in the Wet Drill as a preparation to participating in the "A" Grade event in future years', R.O. Sherwell said.

# REGIONAL NEWS

## Region 6

R.O. Kevin May  
Assistant R.O. Tony Secker

### Review of Fire Season

by R.O. Kevin May

The Fire Season in Region 6 started early with a major fire in the Mount Dampier area of the Le Hunte Council, causing approximately \$450,000 damage. Units private and C.F.S. from as far as Elliston and districts attended the fire. All C.F.S. units from Le Hunte District Council, graders, bulldozers and water tanks helped to contain and extinguish the fire that night. Property loss and crop loss was high. The temperature was high and the winds were strong. Weather information was obtained from C.F.S., H/Q and from Mrs B. Johns at Nundroo to help predict the wind change to the west in the late afternoon. Late in April the Le Hunte District again had fires running in the council area. Wudinna C.F.S. has had a busy year with a major fire, structure and hay stack fires, training and exercises.

Ceduna and Thevenard C.F.S. has had large grass and scrub fires as well as major structure fires in the town. Early in the year the brigade was called to a tanker rollover on the West Australian and South Australian border, a round trip of approximately 1000 km. Thank you for a job well done.

Streaky Bay, Wirrulla, Poochera and all brigades in the District Council of Streaky Bay have had a busy season with grass fires, rekindles and burn-offs out of control because of weather conditions. Streaky Bay C.F.S. has had a run of structure fires in the town with 3 shops and bakehouse being burnt.

Elliston District Council C.F.S. unit attended the fire at Mount Dampier and a large fire at Lock which burnt into Bascombe Wells Park. National Parks and Wildlife Service supplied fire crews as well as Lock C.F.S., Murdinga and the private farm units which provide backup support to the C.F.S. The association at Elliston is into a program of upgrading all fire appliances in the council area.

Tumby Bay Council area had a number of fires which could have caused problems if not for the good work by the fire fighters and officers. Tumby Bay Council, with myself, have started a program of refitting new appliances in the district so that they will meet the standards of fire cover.

District Council of Franklin Harbour finished the season with 2 fires Christmas Eve and 3 or 4 nasty fires in April; a major effort by the district helped to achieve the job. Cowell C.F.S. have budgetted for a new appliance and have raised most of the money so that it can be started when budgets are known. A night training session was held at Cowell with all brigades in the district attending.

Kimba District brigades had a number of fires which they attended. Kimba C.F.S. had a large structure fire, vehicle accidents and grass and scrub fires. We had a training night for the brigades in the district which was very successful to all fire fighters.

Cleve District Council area had only a small number of fires in 1984/85 season which were handled quickly by the appliances. Over the last 2 seasons all units have upgraded pumps which has helped the brigade to control the fires quickly. A new unit for Arno Bay C.F.S. will be a backup to Cleve in any major structure fires in the district.

District Council of Lincoln fire appliances attended a large number of fires in the season, with a major fire in Port Lincoln. 11 C.F.S., 2 S.A.M.F.S. appliances, water tankers and front end loaders attended the fire. It burnt right up to the back fences of the housing trust houses at Lincoln South. Also some of the brigade attended fires in the Tumby Bay Council area on a number of days. A large fire in the Coffin Bay National Park had some of the brigades tied up with equipment and personnel for 4 days. Excellent support is being given by the council and association to our training schools and 1 day training exercise.

Region 6 continued . . .

### Fire Season cont. . .

Iron Knob C.F.S. have attended a small number of calls and have regular training runs for the brigade. Iron Knob and Iron Baron C.F.S. attended a transport fire halfway between Whyalla and Cowell with the S.A.M.F.S. unit as well as Cowell.

In the Gawler Ranges in the last season we had a number of fires which the land holders extinguished themselves.

### Training Schools

A one day training and exercise day has been arranged for all councils in Region 6. The program will cover the fire service role, LP gas, flammable liquids, structure fires and ventilation and Hazchem. Theory and practical day will help all fire fighters to improve our role in the field. We hope to interest some more to come to the regional training schools. The dates below have been set:

Stage 4 at North Shields November 1, 2, 3  
Stage 1 at Ceduna October 18, 19, 20  
Stage 2 at Ceduna April 1986  
Stage 1 at North Shields April 1986  
C.A.B.A. School at Wudinna November 15, 16, 17

### Regional Competition

The Regional Competition will be held at Cleve on September 1 at the football oval. If brigades from out of the region contact me, I will help to arrange somewhere for you to stop overnight. The brigades who have entered the competitions will be asked to help with the judging to make the day a success.

### Attendance at A.G.M.'s

With brigades A.G.M's coming up in the next few months we would like to attend some of the meetings to discuss training and planning for the 1985/86 fire season.

### Congratulations to proud parents

Congratulations go to Tony and Darlene Secker on the birth of their 4th son Klay. Born: 22nd May, 1985 at 5.00 a.m., weight 7lb 13oz.

Both mother and son are very well. The youngest addition has been accepted by his brothers Channon (7 years), Ty (5 years) and Ryan (3 years).

The Secker's wish to advise that they will definitely *not* try 'one more time' for a daughter.

# REGIONAL NEWS

## Region 7

R.O. Peter Ferris

### Air Compressor Stations

C.F.S. Headquarters have provided and set up a Breathing Apparatus Air Compressor Station at Waikerie (Region 7).

The \$9,000 Air Compressor Station is for use by fire services within the Riverland District and will be temporarily housed at the D/C of Waikerie works department.

Upon completion of extensions to the Waikerie fire station in 1986 the air compressor station will be moved and permanently housed at the fire station.

Air Compressor Stations have also been installed at Naracoorte (South East—Region 5) and Jamestown (Mid-North—Region 4). A further station will be provided for Region 6 during the 1985/86 financial year.

Previously some brigades had to send their empty self-contained breathing apparatus to Adelaide for refilling.

C.F.S. fire fighters use air cylinders when entering areas filled with dense smoke or toxic chemicals or gases.



Pictured above, Waikerie C.F.S. Group Captain Mike Arnold demonstrates the new compressor for filling breathing apparatus cylinders.

The two 5,000 lb p.s.i. cylinders fitted underneath the unit each have a separate gauge.

Photograph reproduced courtesy "Murray Pioneer". Photographer Jan Penrose.

## Fire Retardant Mixing Unit

A portable fire retardant mixing plant operated by C.F.S. H/Q personnel Messrs Dave Critchley (Supply Officer) and Michael Knowles (Storeman) was first used at the Emu Springs fire in the South East on Christmas Day 1984.

The success of this operation was further enhanced by the delivery of a C.F.S. designed "Mobile Mixing Plant", pictured below with unit operators Dave Critchley (left) and Michael Knowles.

The plant mixes the fire retardant and then pumps it into a tank on "Bomber One", a fixed wing aircraft used by the C.F.S. for fire suppression operations.

"Bomber One" carries 200 gallons of fire retardant which is dropped onto areas of a fire, as directed by fire officers. Retardant is also dropped ahead of a fire to act as a fire break.

The aircraft also remains in contact with the ground fire retardant unit to advise on the need for further loads and mixing requirements.



This new fire retardant unit was used at every major fire during the 1985 fire season—at Telowie Gorge, Blackhill, Onkaparinga Gorge (2 call outs), Woodside, Danggali Conservation Park, Ngarkat Conservation Park, Wistow, Callington and Coffin Bay fires.

A visit, to the Porepunkah/Bright fires in Victoria in January 1985 by C.F.S. personnel Acting Assist Chief Officer, Operations John Fitzgerald, R.O. Peter Ferris, and Supply Officer Dave Critchley as observers to the C.F.A. air transport unit, reflected on the efficiency of the C.F.S. equipment. Particularly on the limited time span taken to refill the plane with retardant.

The fire retardant unit has also been invaluable in training C.F.S. fire fighters to operate the "mixing plant". At future fires the unit team can now look to support from trained C.F.S. volunteers.

### Footnote:

In the above photograph the "torpedo tubes" (P.V.C. pipe) pictured on the left of the "mobile mixing plant", house the suction hose for the tank and pump. Trailer mounted the unit can "go anywhere".

\* The plant design was implemented by R.O. Peter Ferris (R.O. 7).

For further information on fire suppression through the application of "Fire Retardant" with Bomber One, refer: 'The Volunteer' Volume 22, Page 6—"Aerial Retardant Program" and Volume 23, Page 19—"Aerial Fire Control Gains Wide Support."

**ALDGATE C.F.S.**—In an appeal for funds for a Darley high pressure/low pressure pump for their fire unit, letters were delivered to 1,000 homes in the district. Only 93 people responded with donations totalling \$2,000. The cost of pump (already purchased to save cost increases) with fittings for \$20,000, would bring the truck up to a Class A fire fighting vehicle. A further appeal has now gone out to the rest of the 1,000 residents to send in funds.

**ATHELSTONE C.F.S.**—Received: a new Nissan dual-cab ute (from Nissan) on a 12 month loan for infield tests. A secondhand water truck of which the cab and chassis was donated by Amscol/Streets Icecream Pty Ltd, and the 4,000 litre tanker—previously a petrol tank, from Mobil. A \$470 new water pump was donated by a S.A. firm, Finsbury Pumps, to replace the one the brigade had needed to borrow from the Woods & Forests Department.

Geographically Athelstone C.F.S. consisting of a volunteer force of 58 are within a location of 7 wildlife parks and sanctuaries, but because the Campbelltown Council had recently handed over its area to the S.A.M.F.S., the brigades only financial support has come from the National Parks and Wildlife Service.

**BASKET RANGE C.F.S.**—Notched up several "firsts." Newly appointed C.F.S. Director Mr A. D. Macarthur made his first visit to the Adelaide Hills to commission the brigades new vehicle—a quick attack unit, first of its type in the area. For Basket Range it is also the first time the brigade has acquired a completely new vehicle. The vehicle cost \$20,000 and was fitted out by C.F.S. members. It carries 424 litres of water and a high pressure pump. Mr Macarthur commended the brigade on their initiative in building up the unit, and presented service chevrons to members.

**BLACKFELLOWS CAVES C.F.S.**—Commissioning of their fire unit was performed by R.O. Murray Sherwell (R.O. 5) and a plaque was unveiled before some 90 people.

**BURNSIDE C.F.S.**—Received a generous donation of \$7,000 from the Burnside Rotary Club for a radio paging system.

**COONALPYN C.F.S.**—Recognised 4 crew members who attended 4 regional training schools at Wrattontully last year—Messrs Adrian March, Colin Mikan, Ken Strong, and Dean Elliott.

**COWELL C.F.S.**—Accepted a cheque for \$1,000 raised jointly by the Whyalla Lodge 179 building committee and the Cowell Lodge 59 social committee—towards a new unit.

**EUDUNDA C.F.S.**—Members travelled to Burra to collect their new cab-chassis Ford F350. The purchase was achieved through the efforts of crew members who raised \$7,700 from raffles, cabarets, discos, and burning off blocks of land. The Light Hotel social club donated over \$2,000 and District Council \$8,000. In a public appeal donations were made by Mr R. Ruediger, Mr L. Schutz and Mr K. Dunstan.

**LONGWOOD/BRADBURY/SCOTT CREEK C.F.S.**—New \$36,000 fire unit was dedicated by Stirling D/C Chairman Mr Lloyd Leah on Sunday 28th April 1985. The brigade provided \$6,000 towards the cost with \$12,000 from Stirling Council and subsidy from C.F.S. H/Q.

**MT. GEORGE C.F.S.**—Construction of a new \$60,000 fire station has been approved by Stirling Council. The station is to be built on land donated by E. W. & M. B. Driver, on Rangeview Drive. The brigade will contribute \$5,000, partly in form of labour-fencing and site works. Council to contribute remainder and act as project manager for the building.

**MT. OSMOND C.F.S.**—\$35,000 fire station funded by C.F.S. and Burnside Council was officially opened. The station will house the new \$72,000 fire appliance due to be completed in August 1985. Extensions costing \$40,000 were also made to the Burnside C.F.S. Station to provide kitchen facilities and a lecture room.

**MANNUM C.F.S.**—Have bought a new (third) fire unit equipped to protect the town, for when other appliances are called to attend large fires in outlying areas. (often the local brigade is called to fight fires in the Adelaide Hills area). All the brigade's reserves went on the new land cruiser. Volunteer labour will be used to build up the town fire unit. Pretoria Hotel donated \$250 and Lions Ladies Auxiliary \$200.

**MEADOWS C.F.S.**—Former Deputy Supervisor from 1955–1983 and Councillor Charlie Dunn of McHarg's Creek, was honoured with the "Strathalbyn District Rotary Club Citizen of the Year Award". Charlie has held official offices in the local hospital committee, Agricultural Show Society, Polo Cup, Ashbourne School Council, Red Poll Society and Equestrian, Showjumping, Polo and Pony clubs.

*Congratulations Charlie Dunn on your Citizen of the Year award, an honour well earned.*

**MERIBATH C.F.S.**—Has been granted \$3,000 by Council towards purchase of new pumps and hoses.

**NARACORTE C.F.S.**—Captain Trevor Male received a foam nozzle and hose for fighting fuel fires from the brigades' auxiliary. The Ladies raised \$497 at a series of trash and treasure sales. "Fireman of the Year" was awarded to Roger Bennett—the most efficient member of the brigade in the past year. Roger received his first class fireman's badge, attended a training school at Karingal, gained his St. John Ambulance first-aid certificate and is on the brigades' social committee. A new Isuzu fire truck will replace the brigades' old Dodge truck.

**NURIOOTPA C.F.S.**—Latest fire fighting truck "Nuri 41" was officially commissioned by C.F.S. Director Mr A. D. Macarthur. The new International turbo diesel 4 wheel drive cost approximately \$90,000. Unit and equipment was financed by the Angaston D/C. Original members present at the commissioning were Mr V. Maygor who instigated the unit in 1942 and Messrs W. N. Linke and L. B. Mader, R.O. Brian Menadue (R.O. 2) presented British Fire Services Long Service Awards to members Mr K. L. Bode (20 years), Mr G. Lange and Mr A. B. Rohrlach (15 years) and Mr D. Rosenzweig (10 years). Captain Les Hampel spoke on the history of the brigade. The old Austin being replaced will go to the Barossa Motor Museum at Gomersal. Lions Club and Rotary Club of the Barossa Valley contributed 2 sets of breathing apparatus (\$1,250/set). Donations from the Vine Inn and Immanuel Lutheran Church Light Pass has enabled purchase of: one 2-way radio complete with extension speaker & mike to pump operator, 1 portable lighting plant & lights, 2 safety alarms for B. A. users, spare fuel containers, 3 large re-chargeable torches, suction strainer, fire extinguishers and mounting brackets.

#### Features:

Chassis: International 1830C, 1982 model, four wheel drive with Perkins T6 3544 diesel engine (rated at 108 kw - (145 bhp)), Body: built by Carey Gully Engineering Pty. Ltd.—of steel tubing, steel clad and aluminium roller doors, Pump: Main—Darley HM350—delivery 1325 lpm at Auxiliary—Darley 18 hp 1½" AGE-delivery 450 lpm at 700 kpa, Primer: Darley J960 electric, Hose Reels: 2—50 x 25 mm rubber hose, electric powered reels and Tank: 2,500 litres, and various emergency/rescue equipment.

**PORT CLINTON C.F.S.**—Members and cadets have been instructed in heart and lung resuscitation and basic first aid by local St. John members.

**PENNESHAW C.F.S.**—Will benefit along with legacy from the \$800 raised at the Penneshaw R.S.L. Easter Day Legacy barbecue.

**QUORN C.F.S.**—\$39,500 new quick attack fire unit built to C.F.S. specifications is a Ford 350 with a 5.8 litre V8 motor. Fire equipment consists of two 25mm hoses each 50 m long with electric rewind, 9,000 litre water tank and standard extras.

**ROSEWORTHY C.F.S.**—Had donated \$500 by the Lions Club of Light towards the cost of "building up" and equipping a new fire truck. The Lions Club has been active in the D/C of Light with many community projects including a donation to Freeling C.F.S. last year, of a quick attack unit, now in service.

**STRATHALBYN C.F.S.**—Type 5 fire unit, newly commissioned was funded by D/C Strathalbyn (build up cost \$13,500), with a \$10,000 cab chassis purchased from crew funds. Lions Club gave \$600. Volunteer members Ross Bartlett, George McFee and Wayne McMurtie installed lights, siren control and were overseers on the build up. Special guests at the ceremony included The Mayor and Mayoress Mr & Mrs Leon O'Driscoll, D/Clerk Mr Verne Cotton, R.O. Russell Grear and Mrs Grear, Chairman C.F.S. Group Committee Mr Bert Michelmor, Group Captain Mr Geoff Moran and Deputy G.C. Mr Leon Wittwer.

**SUMMERTOWN C.F.S.**—Raised \$1,800 towards their building and equipment fund, following a bush dance in the Uraidla Show Hall on 30th March 1985.

**TRURO C.F.S.**—Catering for the annual Truro Rally Event raised \$2,700 for the brigade. Tribute was paid to the support of Mr Bruce Howard, in providing the local venue.

**WAROOKA C.F.S.**—Ford F350 \$40,446 fire unit was officially commissioned by Mr K. B. Filmer on Sunday 21st April 1985 on the Warooka Oval. Mr Filmer a foundation member of the brigade was instrumental in forming the *first* E.F.S. unit in the area. He was also a Fire Supervisor, Life member and recipient of the Australian National Medal (25 years service). The new fire attack command vehicle carries 900 litres of water, and is equipped with a Darley 1 1/4" pump which gives high pressure capabilities of 200 p.s.i.

**WARRAMBOO C.F.S.**—Are having a new rural type tanker constructed by Carey Gully Engineering. The body will be fitted to an Isuzu 4 wheel drive chassis. Cost of unit is \$56,000.

**WOODCHESTER C.F.S.**—Has taken delivery of a new Toyota Land Cruiser cab—chassis with body to be built up. Overall cost of \$25,000 is expected.

## Who's who at headquarters

### C.F.S. Training Officer



**GEORGE POLOMKA**  
Regional Officer, Training

Regional Officer George Polomka has been appointed as the new C.F.S. Training Officer. R/O Polomka, currently Regional Officer for Region 4 based at Jamestown, will take up this appointment from 1st July, 1985.

Prior to joining C.F.S. Headquarters staff in 1979 George Polomka had many years' experience as a volunteer Regional Officer. This experience combined with his particular interest in training and education of C.F.S. Volunteers in all aspects of firemanship and fire behaviour, will be a particularly valuable asset to the organisation.

R/O Polomka will be responsible to the Assistant Chief Officer Technical Services Mr. Tony Crichton, for the provision of Training packages, materials and the development of C.F.S. Training Programs. He will also be a member of the C.F.S. Training Advisory Committee which advises the C.F.S. Board on all training matters.

One of R/O Polomka's initial priorities will be the completion of the C.F.S. Training Manual.

## Who's who at headquarters



**Mr. A. R. (BOB) MARRETT**

Manager Support Services

Bob Marrett has been seconded from the Public Service Board for 12 months from 2nd January 1985 to act in the position of Manager Support Services Division of the Country Fire Services at Headquarters.

Bob succeeds Dennis Mutton who acted in the position from June to December 1984.

Duties involve assisting in upgrading and providing financial administrative management systems and supply services to the C.F.S. Board.

The position of Manager, Support Services has been advertised and it is expected that a permanent appointment will be made late July 1985.



**Mr. LEE MORGAN**

Mr. Lee Morgan a Technical Officer in Land Management with the Engineering & Water Supply Department, has been seconded to the Research section (Technical Services) at the C.F.S. Headquarters for 3 months from the 6th May, 1985. The on-site experience and training has been initiated by the E. & W.S. Department to facilitate a review of its Land Management practices in regard to bushfires. This initiative will involve formulating strategies and policy for the management of the Department's landholdings and will involve the compilation of fire protection plans.

Of particular concern to the Department will be the standardisation of fire breaks, access tracks, fire fighting equipment, asset protection, communications, water points, revegetation and fuel reduction—all of which must be subject to Departmental land management objectives.

Lee has been employed with the E. & W.S. for 11 years with qualifications in Surveying, Horticulture and has a Trade Certificate. As a volunteer with the Bridgewater C.F.S. brigade, Lee believes that practical knowledge and procedures are essential when developing any decision relating to bushfire management and is particularly keen to see that all recommendations are put into practice.

## RESPIRATORY PROTECTIVE EQUIPMENT (B.A.)

### (SOME NOTES ON STANDARDS WORK)

by Roy Thompson S.A. Branch Manager  
Standards Association of Australia

The article on breathing apparatus (Volunteer, Vol. 23) prompted me to put pen to paper once more. In the past, the Editor has gently chided me for getting too technical. I thought a look at the less serious side of Standards Association of Australia work might be of interest, although some technical content will be necessary.

One of the S.A.A. committees for which I was responsible was SF/10 Industrial Respiratory Protection. In 1972, this committee began working to metricate and revise the 1963 standards on respiratory protection. In 1975, the first editions of AS 1715 and AS 1716 were published.

A small working group of 4 members was formed to undertake the revision. As the revision commenced, British Standards Institution published its latest revisions. It was natural to start with a review of this work.

The Australian chairman was an internationally acknowledged authority in the field of respiratory protection. He was a member of a number of international committees and a Corresponding member of the B.S.I. committee. He had suggested a number of changes to the British standards, which had not been adopted.

The committee had decided that some testing would be done on subjects in a gas chamber. For full face piece equipment, the atmosphere to be 8 mg/m<sup>3</sup> of O-chlorobenzylidenemalononitrile. (Imagine what my typist thought of that in pre-wordprocessor days!) That is the technical way to express 8 parts per million of tear gas.

The earlier standard had required the wearer to walk around talking and nodding his head. This did not ensure sufficient head movement to test the facial seal, so it was decided to implement a block stacking test. The blocks to be on a shelf above head height, taken to the floor and back to the shelf.

To gain further technical knowledge for the committee discussions, a visit to the laboratory was arranged. We started with a look at the various items of test equipment. The artificial lung machine for measuring tidal flows, demand valve and discharge valve pressures; equipment for determining the efficiency of filters; the fume cupboard, where specific tests are carried out with nasty, toxic gases for equipment with specific applications.

We then picked up every piece of full face mask equipment and went to the gas chamber.

I was given a dust coat, donned one of the outfits and entered the chamber. In all, 3 commercial units and the service respirator were tried and tests involved shifting blocks, climbing steps and walking a motorised pavement. The rates for block stacking, step climbing and walking established that day are those which are included in the Australian standard.

After this, I was invited to try an experimental unit consisting basically of a plastic bag for a specific emergency use. After about 4 breaths, this had blown up like a balloon and after going red in the face, it was hurriedly removed and replaced. I had inadvertently (so I was told) been fitted with the first prototype which did not have a discharge valve.

There was a suggestion that I have a breath of the test atmosphere "... to see what you have been protected against", but declined. At each change of apparatus, sufficient irritant was rising from the dust coat to satisfy my curiosity.

At the conclusion, the advice was to go home and shower, but it was stressed not to wash my hair. Tear gas is a particulate and it is better to allow a breeze to blow it from the hair. Water will wash it into the eyes. All very well ... but, who thinks of eyebrows as hair? Because of this oversight, I had quite a few minutes intense eye irritation.

Some time later, all members of the working group visited the laboratory. At the gas chamber, each was given a different piece of apparatus, ensuring the manufacturer wore his own—naturally. After some time in the chamber, checking the rates previously set, the Chairman said "We will open the door, whip the face mask off as you come out." The intention being to have them breathe a little of the atmosphere which followed them out of the chamber. Unfortunately, one of the members heard this as "Take your mask off and have a good whiff." He did. Half an hour and half a box of tissues later he was almost comfortable. This was at a very low concentration at which the irritant is not visible. When seen on T.V. being used for riot control, the concentration would be around 1000 to 5000 parts per million.

A meeting of the full committee was held, (about 24 members) and a 150 page draft was considered. In an attempt to cover the draft page by page, members constantly reflected back on items, and by the end of the first day only 50 pages were covered. The problem was that we had only been looking at material which had been slightly revised and it was agreed that, next morning, we start on the new material.

This we did. We got to the third page of this when the member who had devised the test pointed out an error in wording. The air from the artificial lung was not doing anything, just going in and out. We got our heads together and started redrafting, with the Chairman looking on. Voice from the end of the table "Mr Chairman, I suggest the following wording ...". The Chairman listened for a few seconds to a suggestion which was of no help and quietly said "Mr \_\_\_ have you ever seen this piece of respiratory protective equipment?" "No." "Have you ever seen the test equipment?" "No, but ...". "Have you ever been in a laboratory which has the equipment?" "No, but ...". "Well sit down and be quiet so Roy and \_\_\_ can sort this out." Surprisingly, we went through the remaining hundred or so pages in a couple of hours.

In the revision, all the suggestions the Chairman had made to B.S.I. were incorporated. Not long after the publication of the Australian standards, the British standards were again revised, incorporating these changes also. They had some credence now because they were "... incorporated in a standard prepared by a National body."

**It must be appreciated that every member of the committee is conscious that at any time a person dons respiratory protective equipment, it is being worn to guard against a potentially hazardous situation. The wearer's health and, in many circumstances, life is at risk. Such a serious subject cannot be taken lightly.**

I hope this article has shown that there can be some lighter moments in the serious work of the Standards Association of Australia.

# GETTING THE MOST OUT OF BATTERIES

by R.O. Trevor Conlon, Communications

## GENERAL INFORMATION

Batteries have two broad groups, primary cells (disposable) secondary cells (rechargeable). The common carbon battery being a primary cell cannot be recharged and is disposed of when discharged. Rechargeable cells however, require special care for reliable service.

The electric battery is a device for the direct transformation of chemical energy into electric energy. In a storage battery the reactions are fully reversible. The capacity of the battery is determined by a number of factors e.g. design and dimensions of plates, temperature, density and quality of electrolyte, discharge rate and the final limiting voltage. The capacity of cells making up the battery is usually given in terms of its *ampere-hours capacity* (Ah) at a given discharge rate. For example a battery rated at 200 Ah at the 10 hr rate is capable of delivering 20 amperes for 10 hours before dropping below the minimum specified voltage.

### Characteristics and Operation of Lead-Acid Cells

It is particularly important for long life of the battery that the highest purity electrolyte (sulphuric acid and distilled water) is used.

The *specific gravity* of the electrolyte of a charged cell is nominally 1.220.

A lead acid cell could have an S.G. of 1.260, but any higher could be damaging. (The specific gravity is the ratio of the mass of a certain volume of liquid to the mass of the same volume of water at the same temperature.) The specific gravity readings are usually given at a temperature of 25°C.

During discharge the specific gravity of the electrolyte falls, owing to the combination of the sulphuric acid with the active material of the plates to form lead sulphate. During charge this phenomenon is reversed and the specific gravity rises.

To measure the specific gravity of the electrolyte a hydrometer is used. This consists of a glass tube with a weighted float inside. This float has a graduated scale on it which indicates the specific gravity of the electrolyte drawn in by the rubber suction bulb.

Typical discharge curves for lead-acid cells are shown in Fig. 1.

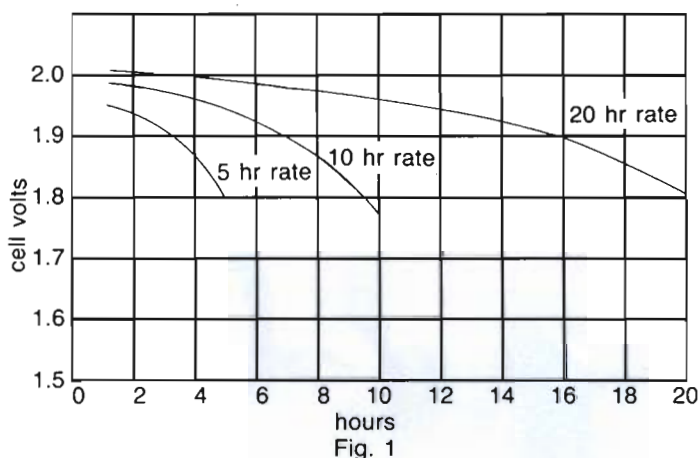


Fig. 1

The gassing rate increases significantly near the end of the charge cycle. Gassing is the result of decomposing the water into oxygen and hydrogen by an excess charging current not utilised in charging the active material. When the battery is in a discharged condition a comparatively high charging rate can be used resulting in little gassing. Excessive gassing tends to dislodge the active material so that it is necessary to reduce the charging rate for "finishing off" the charging cycle.

## CARE OF BATTERIES

The following summarises a number of important points in the care and maintenance of batteries.

### (1) Lead-Acid Batteries

- Always charge at the specified rate. The float current into a fully charged battery should be of the order of one milliamp per Ah of battery capacity.
- Keep batteries clean and lightly smear all terminals with vaseline to control sulphation.
- Keep all connections tight, but do not overtighten. Ensure that lead-burning on connections and bridges has not been fractured.
- Keep the electrolyte up to the marked level by the addition of distilled water, free of impurities.
- When checking a battery examine every cell and check its specific gravity with a hydrometer. (Wear eye protection when doing so.)
- When boost-charging a battery, keep a check on the temperature of all cells.
- Always see that ventilation is adequate.
- Always switch off the charger before disconnecting any cells.
- Undue gassing will generally indicate that the charging rate is too high.
- Never bring a naked light near a cell which is on charge.
- Do not leave spare batteries in an uncharged condition.

### (2) Rechargeable Batteries (Nickel Cadmium Type)

- Recharge at a correct rate for the battery. (Use a charger designated for the specific type of battery.)
- Never leave batteries in uncharged state.
- Do not leave batteries on charge, while in equipment which is switched on.
- "Cycle" batteries periodically (6 monthly approximately) by discharging fully and recharging to prevent "memory" build up.
- Never short out a nickel cadmium cell. Extreme heating will occur.
- Be aware that the battery voltage is 1.2V per cell (not 1.5V as for the common carbon type).

Batteries are relied upon in many areas of C.F.S. operation and proper care is needed to ensure their best performance.

## SHOPS BURNT IN TRAINING EXERCISE

by Fred. L. Kerr, A.F.P.A. Media Officer

During the last week in February the S.A. Arson Liaison Group set a series of fires in a block of three 90 year old condemned shops to simulate conditions confronting arson investigators, to study fire ignition and behaviour phenomena and to record these effects for training purposes.



Shop fire No. 3 at a critical stage.

The exercise was made possible through the co-operation of the Highways Department (shops), S.A. Police Department, Metropolitan Fire Service, S.A. Country Fire Services, Insurance Council of Australia, public utility authorities, Hindmarsh Corporation, Salvation Army (furnishings) and neighbouring residents. A total of 5 shop fires and 5 small experimental fires was lighted, controlled and studied. Accelerants used were turpentine, kerosene, diesel oil and petrol. A paper trail fire was used as a fuse to A Class combustibles. Although early planning suggested that the investigators deduce the causes of the fires it was decided as a matter of expedience that a "before and after" examination with full knowledge of the fuel arrangements and sources of ignition would be most fruitful. This proved to be a good decision and saved a lot of time. In all, some 20 persons directly involved in investigations including Mr Terry Casey from the Queensland Arson Group took part, with an additional 20 or so observers having an associated interest. The A.F.P.A. (S.A.) State Committee is indebted to Arson Group Delegate Mr Alex Robertson, Chief Technical Officer, Fire Protection Inspection Services Pty. Ltd. for the following chronicle of events.

"The Hindmarsh Corporation cordoned off the area to prevent unauthorised parking and the Metropolitan Fire Service committed 2 tenders and crews to the job. The S.A. Police controlled the traffic and casual observers and disruption during each fire was no more than 15-20 minutes with no apparent upset or undue delays to the traffic.

The rear section of the first shop was set up as a bed-sitting room with double and single beds, wardrobes with clothes, a radiogram, chairs and carpet.

Turpentine was trailed across the double bed and onto the carpet and lit. In three minutes the entire room was an inferno and had to be quickly extinguished with fog nozzles, the firemen using breathing apparatus.

Initially on inspection, if we had not already known, we would have had no idea what had been the cause. However, after carefully dissecting the carpet and linoleum underneath the presence of flammable liquid became clear and was later proved by laboratory test to have been turpentine. Incidentally turpentine was used because we agreed that petrol, a common incendiary agent, was too explosive and could have hindered our operations.

Fire two, in the next shop was by a newspaper trail to a heap of paper and other ordinary combustibles in a corner. The compartment was not furnished but had wooden shelving and canite wall coverings. When lit the paper trail took a good 5 minutes to reach the heap (the room was poorly ventilated) and then progressed slowly, confining the fire to the corner and it began to die for lack of fuel. We added more fuel and off it went, engulfing the whole compartment. When the heat shattered and demolished the plateglass window the firemen were again called in. We specially noted only a very light charring on the bare wooden floor and that the linoleum under the heap had in fact protected the floor beneath it. No traces of the paper trail remained thus obliterating any possibility of recording this link as evidence. Investigators would have been faced with establishing that there could have been no logical source other than deliberate.

Fire three meant a return to the front of Shop 1 where we set up a lounge-kitchen with tables, chairs, couch, television, plastic containers and carpet. This fire was fueled by kerosene over the couch and carpet and it progressed so quickly it took only 1 minute before it had to be extinguished. The evidence of accelerant was again detectable and the burn patterns on the walls and furniture indicated the location of the source.

The next fire was in Shop 3. The wooden floor was completely cleared and kerosene poured over an area of a few square feet. This was to ascertain the burn pattern on the timber and to observe, from the basement below, what happened when the burning liquid seeped through the cracks and the effects on the underside of the floor and was of most interest to the forensic people.

When the kerosene was all but consumed this fire died down almost to the point of self extinguishment, which in itself was interesting, and the scientists having got what they wanted the fire was fed with timber and off it went again. This time we were able to observe flashover (the auto ignition of combustible not in contact with flame) which can be likened to a slow explosion.

This was quite the fiercest and most spectacular fire of them all and after extinguishment a study was made of the "alligatoring" effects on the top surface of the floor (very little damage had occurred to the underside) and it was agreed that had it not been known it would have been most difficult to conclude that an accelerant had been used. The only real clue was the location of major damage.

In between these fires experiments were carried out on a concrete slab in an open sided shed at the rear of the premises. The effects on the concrete of various flammable liquids were compared with that of a crib fire using timber only. The liquids did not cause spalling, whereas the timber did, illustrating that spalling is not necessarily caused by accelerants themselves, as is inferred in some publications, but by pure heat perhaps after the accelerant has been all consumed.

In the petrol experiment it was noted that the charred remains of the match used to ignite it was still clearly visible and on removing it, its shadow remained on the concrete—a potentially very important clue.

It is difficult to quantify the results of the exercise, suffice to say that a great deal was learned and re-learned by all who participated and all, without exception, were agreed that the exercise was very worthwhile.

We had a debriefing on March 7th and had a preview of the video film which will now require to be severely edited and condensed to about 30-40 minutes. A suitable script and voice narration are going to be formidable tasks to create anything like a professional job".

Summing up, District Officer D. C. (Charlie) Mace of the M.F.S. Fire Investigation Department who was in charge of the fire operations expressed his appreciation of the manifest success of the project and pointed out that it had, in particular, provided an important opportunity for fire and investigation officers to witness the actual initiation and spread of fires at first hand. "Witnesses who had seen ignition and fire behaviour won greater credibility in courts" said Mr Mace. "I was especially impressed by the rapid development and extent of the fires after such a short period of 2 or 3 minutes by which time a whole room was ablaze, bearing in mind that when taking into consideration detection, call-out and response times, fire fighters are rarely on the scene of a fire earlier than 5 to 10 minutes from starting" commented District Officer Mace.



Police, Fire Service and Forensic Science fire investigators bent on observing fire ignition.

# C.A.B.A.—The Full Story

## PART III

### NORMALAIR

## COMPRESSED AIR BREATHING APPARATUS

### INTRODUCTION

The self contained apparatus is designed to supply respirable air to the wearer independent of the surrounding atmosphere. It operates on the open circuit principle, wherein the exhaled air passes to waste via the expiratory valve which is incorporated in the speech diaphragm in the front of the face mask.

### GENERAL DESCRIPTION

#### MODEL A-100

Basically, the apparatus consists of a cylinder secured to a moulded back-plate by 2 quick release cylinder straps, and by means of a waist belt and shoulder straps, is worn on the wearers back. A moulded rubber face mask incorporating an acrylic visor and speech transmitter/expiratory valve, is secured to the face of the wearer by a rubber head harness. High pressure air is supplied to the demand regulator and the pressure gauge via a rigid manifold system and 2 flexible high pressure hoses. The cylinder valve is the only valve which has to be operated for wearing of the apparatus, and must be opened before fitting the face mask. A low-pressure warning whistle is also incorporated in the manifold system.

#### 1. CARRYING FRAME AND HARNESS

The Carrying Frame is manufactured from Moulder Termo-Plastic and forms the back plate, which is shaped for comfort and fitted with a cradle for the cylinder. The cylinder is secured in the cradle by stainless steel holding straps tensioned by thumb screws on swing bolts.

The harness consists of 2 padded, adjustable shoulder straps and an adjustable terylene Waist Belt with a "D" Ring secured to the left side for the attachment of the personal line.

#### 2. CYLINDER CAPACITY AND WORKING DURATION

There are 2 cylinder sizes available for use with Normalair C.A.B.A. Because of the back-plate swing bolts, there is sufficient adjustment to accommodate both sizes on every apparatus. For operational use, the cylinders must be at least 5/6ths. of their fully charged pressure. If less, a fully charged cylinder must be fitted to the apparatus.

Cylinder and Main Valve:

Cylinder is constructed of a light alloy steel. The main cylinder valve is screwed into the cylinder with a tapered thread. At right angles to tapered thread is cylinder valve wheel, opposite is the high pressure supply connection. Cylinder valve is protected from damage by rubber buffer—valve seating, fibre or nylon.

Capacity of Cylinders:

Approximately: 1,200 litres of air at 132 atmospheres
1980 psi
1,800 litres of air at 200 atmospheres
3000 psi

Home Office (T) Specification:

The average consumption of air by an adult moving at walking pace is approximately 40 litres per minute. Because the apparatus is a "demand" set, (i.e. it will supply air to the wearer according to his demand), the working duration of the apparatus cannot be accurately determined. Factors that effect the working duration of the apparatus are:

- The size of the wearer
- The fitness of the wearer
- The degree of work being performed

HARD WORK will always reduce the working duration of the apparatus.

The amount of air used by the low-pressure warning whistle is negligible in effecting the working duration of the apparatus. Its venturi design causes the surrounding atmosphere to create the whistle sound. The whistle will sound when there is approximately 45 ats. (660 psi) pressure remaining in the cylinder, indicating that there is approximately 10 minutes air supply still available. This amount of remaining air is known as the "safety margin". Therefore, the working duration is calculated as follows:

### NORMALAIR

## COMPRESSED AIR BREATHING APPARATUS

Full capacity – safety margin = Working duration

L.P. Cylinder:	=	1200 litres	
		40 lit/min	
	=	30 mins.	
	–	10 mins.	(safety margin)
		20 mins.	(working duration)
H.P. Cylinder:	=	1800 litres	
		40 lit/min.	
	=	45 mins.	
	–	10 mins.	(safety margin)
		35 mins.	(working duration)

The colour code for Normalair cylinders is "Lime Green/Yellow" to designate 'Breathing Air' only.

The purity of the breathing air used in the B.A. cylinders (previously identified by the French grey colour with black and white quartering) does not meet the Australian Standard for "Medical Air", hence the colour change.

#### 3. MANIFOLD ASSEMBLY

The assembly begins with the high pressure cylinder connector which consists of a hand wheel for easy connection to the cylinder valve, and an "O" Ring. The connection need only be made hand tight. The "O" Ring facility automatically locks the connection when under pressure, (i.e. when the cylinder valve is turned on). The high pressure connector is attached to the manifold assembly proper, via a short P.V.C. line. The manifold assembly is housed on the back plate, and is constructed on nickel-plated copper piping. It terminates at the top of the back plate at the "Y" piece. From here, 2 flexible high pressure lines each lead to the Pressure Gauge and the Demand Regulator. The low-pressure warning whistle is connected to the manifold assembly near the lower end of the back plate via a "T" piece.

#### 4. HIGH PRESSURE FLEXIBLE HOSES

These are constructed of terylene/rayon reinforced rubber and are pressure tested to 680 ats. (10,000 psi).

Long Hose:

From "Y" piece on back plate, over right shoulder to demand regulator.

Short Hose:

From "Y" piece on back plate, over left shoulder to pressure gauge.

#### 5. PRESSURE GAUGE

The pressure gauge is a Bourdon Tube type gauge, the dial having white figures on a black background. The pointer, zero mark and the horizontal datum line across the bottom of the dial are luminous. This allows the cylinder contents to be assessed in the dark.

Safety devices are incorporated into the pressure gauge to operate in the event of a major failure of the Bourdon tube or sweated joints.

##### (a) Pressure Gauge Shut-Off Valve:

This device restricts the loss of air due to any major leak in the pressure gauge, and allows adequate withdrawal time for the wearer.

##### (b) Pressure Gauge Relief Valve:

This prevents a build up of pressure in the pressure gauge body and so prevents any possibility of the gauge face fragmenting under pressure and injuring personnel.

##### (c) Gauge Line Restrictor:

A restrictor in the "Y" piece of the manifold system, which only allows a flow of approximately one lit/min. also provides adequate withdrawal time for the wearer should a leak develop in the gauge or gauge line.

Because of these safety devices, a Pressure Gauge Isolating Valve is not required.

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## PART III continued

### NORMALAIR

#### COMPRESSED AIR BREATHING APPARATUS

##### 6. DEMAND REGULATOR

Component parts:

Clamping ring, moulded nylon housing with outer section perforated, siliconized rubber diaphragm bonded to a central pressure plate, tilt valve with a deflector and a metal circlip.

Operation of Demand Regulator during Inhalation:

The tilt valve is held onto its seat by the high pressure air acting upon it. Upon inhalation, a partial vacuum is created within the face mask which allows atmospheric pressure to push the demand regulator diaphragm inwards. The diaphragm central pressure plate presses against the tilt valve stem and unseats the valve. Air passes through the tilt valve body and strikes the deflector, which disperses the air into the face mask.

Operation of Demand Regulator during Exhalation:

Upon commencement of the exhalation cycle, a pressure slightly above that of atmospheric pressure is created within the face mask. This causes the diaphragm to move outward, away from the tilt valve stem allowing the high pressure air acting on the head of the tilt valve to reseal it and thus stopping the flow of air. The exhaled air is exhausted to atmosphere through the mushroom shaped rubber expiratory valve in the centre of the speech diaphragm.

If the wearer has need for more air, this may be achieved by gently pressing the demand regulator diaphragm with the tip of the finger through the opening provided in the outer nylon housing.

##### 7. FACE MASK AND HEAD HARNESS

The face mask is constructed from moulded rubber and incorporates a full vision acrylic visor. A bonded air cushion seal located around the inner edge of the face mask provides the facial seal. The speech diaphragm and expiratory valve are located in the front central housing. The demand regulator port is located in the left side of the face mask. The head harness consists of a rubber assembly with six adjustable ribbed straps to prevent slipping. Quick release buckles are fitted to the face mask to allow the head harness straps to be released easily.

##### 8. AUXILIARY EQUIPMENT

(1) Distress Signal Unit:

The D.S.U., as the name implies, is to be used *ONLY* when the wearer is in distress. It must not be used for any other purpose. Basically, it is a horn unit powered by a torchlight battery. Once activated, it will last many hours depending on the condition of the battery. Other members of the team, upon hearing a D.S.U., will immediately proceed toward the sound and render assistance.

(2) B.A. Tally and D.S.U. Key:

The Tally is for the recording of wearer details when used in conjunction with a B.A. Control Board. It is attached to the D.S.U. The preparation of the Tally and Control Board is covered by a Fireground Practice. One very important point is that the wearer *must* report to and collect his Tally from the Control Officer immediately he emerges from the building in which he is working, or any other breathing apparatus task. If a D.S.U. is activated by a wearer during operations, it cannot be turned off until the injured wearer is conveyed to outside safety. This is because the D.S.U. key is attached to the B.A. Tally, which is of course with the Control Officer.

(3) Personal Line:

Is a 6 metre sash cord type rope line non load bearing with a safety hook at each end. Used by an individual member of the team to maintain contact with a guide line.

### NORMALAIR

#### COMPRESSED AIR BREATHING APPARATUS

##### 9. DONNING AND STARTING UP (SEE \*F.G.P.)

- (1) Don set, bringing well up on back.
- (2) Adjust and tighten belt, then shoulder straps—clip on and adjust chest strap.
- (3) Open cylinder valve—check pressure reading on gauge.
- (4) Fit face mask—*tighten lower 2 straps first*—then middle pair, finally upper pair—do not overtighten—this procedure ensures correct fitting.
- (5) Carry out Low Pressure Test.

##### 10. ROUTINE CHECKS

- (1) *Carried out Daily where practicable*
  - (a) check cylinder contents. If less than 110 atmospheres change cylinder. High pressure cylinders change if less than 165 atmospheres.
  - (b) Adjust harness—check headgear.
  - (c) Enter necessary details on B.A. tally.

##### 11. TEST FREQUENCY

- (a) On Acceptance
- (b) After use or repair
- (c) Monthly
- (d) Quarterly
- (e) Annually
- (f) Hydrostatic test of cylinder 2 yearly

For (a) and (c) above, the procedure is as follows:

- (1) High pressure test.
- (2) Low pressure test.
- (3) Complete check of apparatus ensuring shoulder straps and face mask head harness straps are fully released.
- (4) Test Dictron.
- (5) Ensure Tally and Personal Line are attached to apparatus.
- (6) Enter necessary details on Record Card.

High Pressure Test: (See \*F.G.P.)

- (a) Open cylinder valve and listen for audible leaks. To correct audible leaks post the tilt valve—manually operate diaphragm several times.
- (b) Check pressure gauge reading. (If less than 5/6th., replace with spare cylinder.)
- (c) Close cylinder valve. (Pressure must not drop more than 60 ats. in 5 minutes.)
- (d) Release pressure and check for whistle at 45 ats.

Low Pressure Test: (See \*F.G.P.)

- (a) Open cylinder valve, fit and adjust face mask. Check demand regulator is working correctly.
- (b) Close cylinder valve, continue breathing until air in system is exhausted. Check for air-tight seal.
- (c) Remove face mask, disinfect, polish and demist visor and loosen head harness straps to fullest extent.

Routine Monthly Test:

- (a) Wear set for minimum of half an hour.
- (b) Recommission.
- (c) Wash face mask with mild disinfectant solution—dry thoroughly—polish and demist visor.
- (d) Test replacement cylinder with test gauge—re-assemble apparatus.
- (e) Perform the following:
  - (i) High pressure test
  - (ii) Low pressure test
  - (iii) Complete appropriate entries on breathing apparatus records card.

\*Fire Ground Practices

PART III to be continued next issue . . .

## USE OF C.F.S. FREQUENCIES BY VARIOUS ORGANISATIONS

The following policy has been adopted by the S.A. Country Fire Services Board as of May 1985:

With the number of radios increasing on the C.F.S. VHF radio network, and the need for greater efficiency in communications it has become increasingly important for the C.F.S. Board, through its officers, to take steps to ensure future control of those frequencies allocated by the Department of Communications to C.F.S. for fire fighting and related emergency activities.

The method of inter-service communications has been established by the Joint Emergency Services Committee and provides for forward control operation and state channel 2 (163.120 MHz) as a liaison/command channel.

The need for other organisations or users generally to have C.F.S. radio frequencies in their equipment is in many cases not justified and the following policy is for use of C.F.S. frequencies has been adopted.

- (1) That all **registered C.F.S. brigade** appliances and command vehicles be fitted with the 22 frequencies available for general field use.
- (2) That **163.630 MHz** (channel 1) be fitted only to District Command radios and others as approved by the Director of C.F.S.
- (3) That **privately owned vehicles** equipped for fire fighting be permitted to install C.F.S. frequencies provided that they are registered with a district network as an auxiliary fire fighting vehicle.
- (4) That **district council** vehicles used directly in fire fighting or coordination be permitted to install and use C.F.S. frequencies for communications with C.F.S. fire controllers.
- (5) That **private vehicles** used by persons considered to have need for access to C.F.S. networks be permitted to have installed C.F.S. frequencies only upon approval of the Director of C.F.S.  
Such approval shall only be given after request by submission from a C.F.S. brigade or district organisation.
- (6) That **other organisations** involved in joint operations with C.F.S. do so in accordance with standard joint emergency service practices (i.e. liaison at forward control points). The use of C.F.S. frequencies by other organisations may be approved by the Director of C.F.S. upon special submission by those organisations, or district organisations, on their behalf.  
Unless special circumstances exist, such an approval shall only be to the extent of use of channel 2 (163.120 MHz) for priority command and liaison.  
Radios approved under this category shall only be used in response to a specific request for assistance from a C.F.S. control, and shall operate under the direction of the C.F.S. officer in charge of the incident.
- (7) That licensing of all radios other than those in (1), (3), (4) and (5) be carried out by C.F.S. Headquarters.
- (8) That portable (and other) radio equipment operating on C.F.S. frequencies require approval in keeping with the requirements of the relevant users described above.

It is further recommended that this policy be made widely known, with a requirement for all parties having any C.F.S. frequency fitted to ensure that their equipment is listed on the appropriate district register, or notify, in writing, the C.F.S. Board to ensure appropriate licensing. Such registration of equipment to be completed by 30th October, 1985.

A. D. MACARTHUR  
Director, Country Fire Services

## W. & F. ATTACK FORCE

Four R.F.W. "rapid attack" fire trucks designed for forest fire fighting and purchased by the S.A. Government have since joined the Woods and Forest Department's fire fighting forces in the South East.

The R.F.W.'s were tried and tested in the Ash Wednesday II bushfires (February 16th, 1983), and came through with flying colours—refer "The Volunteer", Volume 17, Pages 18 and 19.

Each unit takes a 5-person crew and has carrying capacity of 3,700 litres. This large water carrying capacity and the speed and manoeuvrability of the "all terrain" vehicles are big plusses when every minute counts in fire suppression.

Safety features include an insulated crew cabin to act as a crew haven for the crew. Each unit has an auxiliary diesel-powered sprinkler system that can cover the truck in a fine protective mist.

As backup to the new attack force the department has ordered 6 wheel-drive tippers as support tankers. Each support tanker will serve 2 R.F.W. fire trucks. Fitted with a 9,000 litre integral tank system they are capable of taking on water from an overhead bore or from ground water. The tippers powered by V8 caterpillar motors have 4x4 automatic transmission and super single tyres. Off-season the support vehicle water tanks can be slipped from the tipper and the tankers can then be used as general work trucks.



Pictured above the R.F.W. demonstrates the power of spray from the R.F.W. fire hoses and front bumper-wheel sprays.

## PROCEDURE FOR REQUESTING SMOKEY THE KOALA APPEARANCE(S)

C.F.S. Ref: 227/1/38



**Should a Country Fire Services brigade, Fire Fighting Association, service club or fund raising organisation request a free appearance by "Smokey the Koala"—South Australia's fire prevention symbol and Country Fire Services (larger than life size) mascot, the following applies:**

Smokey the Koala costume shall be used only in programs where bushfire prevention/fire safety education is a factor, involving:

1. School education programs
2. Attendance at C.F.S. fund raising activities, service club programs for children/country fairs/shows or parades, and,
3. Special appearances approved by the C.F.S. Director, or C.F.S. Board.

An appearance generally involves a 15 minute fire safety story/*pantomime*, with Smokey the Koala, a narrator, "Fierce Fred Flame" and 10 picture story board panels.

Where the children present have previously seen the standard pantomime, another story involving either house protection, survival in a car, or the role of the C.F.S. can be substituted.

All requests, preferably for week-end appearances, are to be submitted in writing marked:

"Smokey Appearance",  
C/- Country Fire Services,  
Technical Services Division,  
P.O. Box 312,  
GOODWOOD. S.A. 5034.

Upon receipt of requests, the following would be considered:

1. Availability of Smokey the Koala
2. Has your Regional Officer supported your request?
3. Is the appearance a week-end activity?
4. As the program must involve children, how many children are expected to attend?
5. What promotion is planned to pre-announce the event and "Smokey's" appearance (e.g., free hand-outs, display posters, banners/signs, media coverage, etc.)?

Approval for appearances can then only be given by Country Fire Services Headquarters, in writing, not verbally.

Approval would be in the form of a standard acknowledgement of attendance letter: 227/1/38 (reply)—containing a list of basic requirements that need to be met by the organiser(s), i.e., a changeroom area, a stage (preferably a flat top truck), a public address system (microphone with stand and speaker/s) and back-up support from the local C.F.S. brigade.

The C.F.S. Publicity Officer would record the approved request(s) in a special appointments diary and on a calendar-activity wall chart listing Smokey the Koala appearances in each region.

A copy of each reply letter would then be forwarded to the appropriate Regional Officer for information.

The Smokey the Koala costume can not be loaned out. A paid professional mime actor (under contract with the C.F.S.) will at all times wear the costume.

At programs within 100 km of Adelaide, a "pantomime narrator" generally accompanies Smokey and the actor. Outside the 100 km radius, the narrator would be someone selected by the program organisers. "A good communicator able to relate well to children of all ages" should be criteria for selection.

The organiser(s) would be asked to assist in the distribution of free "Smokey's fire safety messages"-leaflets immediately following an appearance.

A follow-up letter from the program organiser(s) detailing:

1. Attendance figures
  2. General observations
  3. Suggestions and remarks—favourable or otherwise, together with:
  4. Press cuttings on media coverage of the event(s) attended by Smokey the Koala . . .
- .. Would greatly assist Smokey's Bushfire Education Program for Children.

