Review

of

The Falkland Islands Fire & Rescue Service

and

Fire Protection

in the

Falkland Islands

Report or Review

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by

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The Fire Service College
Review of Fire Protection in the Falkland Islands

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The Falkland Islands

Fire Protection and the Provision of Fire Services

1.0 Background to the Review

1.1 Introduction

Fire protection is, quite properly one of the most important and necessary parts of the public service provision in any modern developed society. Good fire protection is first and foremost about adopting a fire safe culture. The outward visible signs of fire protection are usually clear enough, the fire station, the fire engines, the firefighters and to the more observant, the alarm systems and extinguishers in many buildings but true fire protection must be much wider than just preparing to react to fires when they occur.
Occurrences of fire are a fact of life for a host of reasons and an effective response must be available to deal with them but real fire protection consists of three components, fire prevention, fire safe design and management of buildings and fire fighting, each are complementary to one another. This concept calls for a contribution from both Government and the whole community. The fire service is the professional department which must take responsibility for and be empowered to manage all aspects of fire protection throughout the community but to be really effective it must not only be resourced to fight fires and deal with other emergencies but must have the ability to influence those responsible for the management and design of property, whether it be buildings, industrial plant, or vessels that their role in the three part equation is as important as that of the Government and the Fire Service. The greatest possibility of success in achieving and maintaining good standards of fire protection will be within the framework of structured and clearly defined written terms of reference and performance objectives for the fire brigade and published standards, enforceable where necessary, for fire safety design and management of buildings and other installations.
While there are many examples of structures for the organisation of fire protection services in communities internationally and useful guidance is available from some of them, that which is regarded as appropriate for the Falkland Islands will draw most on United Kingdom experience and practice adapted to be specific to the Island's needs. The review on which this report is based has taken account of the specific, and in some cases quite unique, aspects of the Falkland Islands community but without loosing sight of the need to achieve a standard of fire protection which is effective and credible in an advanced society and which will be able to respond to commercial growth.

1.2 Terms of Reference for the Review

Building on a review of the application of fire safety in the Falkland Islands carried out in January 1996 and in the light of recent ship fire incidents, to visit Stanley during February 1997 and to critically examine all aspects of the provision of fire protection services for the Falkland Islands and the resourcing, operation and management of the Fire and Rescue Service in Stanley.

In particular to :-

- provide a broad definition of a balanced fire fighting capability including hardware, manning levels etc.
- provide a similar analysis of the marine requirement
- compare what actually exists with what might be regarded as ideal.

1.3 The Development of the Fire Service in Stanley

Not unlike the development of fire protection services and fire safety legislation in many other parts of the world, notably Britain, the origins of the present day fire service in Stanley can be traced to a fire disaster. Although a volunteer fire fighting unit was first formed in February 1898 which continued until the present Brigade was established it remained largely unstructured and modestly equipped until the mid 1980's.

A disastrous fire at the King Edward VII Hospital Stanley in April 1984 which claimed the lives of eight patients clearly exposed weaknesses in both fire safety practice and fire fighting capability. The present Chief Fire Officer, Mr Marvin Clarke was appointed as the first wholetime professional officer in January 1985 with a brief to develop a fire service appropriate to the needs of the Falkland Islands.

CFO Clarke spent the whole of the latter half of 1985 in the United Kingdom undertaking personal training and establishing routes for the supply of equipment and he began the development of the present day fire brigade in Stanley at the beginning of 1986.

The brigade was administered as a part of the Public Works Department (PWD) until mid 1986 when, with the appointment of one wholetime fireman and a mechanic the Brigade was established under its own management.

Development of the present fire station site enabled the Brigade to move there in 1988 and the next year the wholetime establishment rose to four including the Chief Officer. In parallel over this period the establishment of volunteer / retained members of the service was increased to thirty.

A great deal has been achieved, not just in building up the visible resources of the brigade, but also in the longer term objective of raising the levels of training and fire fighting experience of the operational staff.

With no formal training in fire safety practice the Chief Fire Officer has also taken it upon himself, with some success it must be said, to make recommendations and cajole building owners to improve fire safety measures in their buildings. At least a widespread acceptance of the need for fire safety has been achieved albeit there are a number of residential buildings where standards are still low.

Additionally at CFO Clarke's request there has, in the recent past, been two visits to Stanley by UK fire safety officers who have undertaken a number of fire safety inspections of buildings and made reports. These activities suffered from a fundamental misjudgement in that inappropriate UK code based standards were applied which were plainly too onerous with the result that little was achieved.

Notwithstanding the fire at the hospital and the impact that good fire prevention and fire safety management practice could well have had on that event, there is no regulatory structure in place to set down and require at least a minimum level of fire safety to be in place in public buildings and places of work.

It was against this background, and with the modern fire service infrastructure having been in place for nearly ten years that the Chief Fire Officer initiated a dialogue with the Fire Service College in 1994 with a view to obtaining a professional and independent appraisal of fire protection, in particular the mechanism of enforcement of fire safety in the Falkland Islands.

An initial visit was made in January 1995 by Assistant Chief Fire Officer Geoffrey Winkworth, Director of Fire Safety Engineering Programmes at the College. It was at that time left open that a further visit might be appropriate to advise on the preparation of fire safety regulations and the drawing up of suitable fire safety standards.

In the event operational fire fighting demands and pressures experienced by the Brigade during the 1996/97 Summer suggested a wider brief for a further visit. The terms of reference for a visit during February 1997 were drawn up.

2.0 Fire Protection

Reference was made in the introduction to 'Fire Protection', a term which is used in a generic sense to describe the whole process of guarding a community against fire. In the individual discussions of fire fighting, building design, fire safety regulations and fire prevention which follow, it will be evident that each has an influence on the other. Good fire prevention for example will reduce the number of fires and thus the potential demand for fire fighting. Good fire safe building design will limit the rapid growth of fire and proper fire safety provision such as alarm systems will ensure early discovery of fire. In considering the emphasis which is to be placed on any one aspect of fire protection, the real effect on the whole fire defence effort should also be considered.

2.1 Fire Prevention

Fire prevention is primarily a matter of building an understanding among the general population of the most common ways which unwanted fires may be started and how they may be avoided. It is essentially just what it says, 'fire prevention'. It is the main contribution to fire protection which can be made by every individual member of the community. The objective is to ensure that sufficient care is taken with fire and with equipment and materials which could be the source of fire, to, as far as possible avoid fire starting.

Most commonly, care with smoking materials, household fires, heating equipment, electrical appliances and installations and proper maintenance of building services is what is called for.
A good understanding of, and a positive attitude towards fire prevention among the general public is achieved through public relations initiatives, training and regular revision and reminders.

By far the most effective investment in fire prevention education can be made in schools. The subject is invariably of interest to children particularly of junior school age which is when they are probably most impressionable. Such training however needs to continue at stages during later school education changing in emphasis and being made appropriate to the level and age group concerned.

Good fire prevention can also be promoted through house to house visits, talks to youth clubs and adult social groups, advertising campaigns, maybe as part of an annual fire safety day and fire station open day each year.
In the case of public buildings, industry and commerce, fire prevention is a part of good fire safety management which should be included in a process of fire risk assessment and inspection undertaken by the fire brigade.

2.2 Building Regulations

Adequate standards of fire safety design and fire resisting construction of new buildings and the incorporation of reasonable fire protection standards in the alteration and extension of existing buildings should be a integral part of the building regulatory process. Building Regulations should be in place which specify the standards to be achieved for design, construction and installations.

Fire safe design seeks to ensure that the layout of buildings is such that sufficient and adequate escape routes and exits are provided according to the intended use of the building and where necessary fire resisting construction is used to protect escape routes and restrict fire spread.

By far the easiest time to install fire safety systems in buildings is during initial construction or major refurbishment. A modest investment in fire protection such as an automatic fire detection or extinguishing system is an investment for the life of the building but the quality and installation of such systems must be subject to certain minimum standards to ensure correct operation and reliability.

2.3 Fire Safety Regulations

The standards of general fire safety in existing buildings were examined in some detail as part of the Review of Fire Safety in the Falkland Islands undertaken during January 1996. Standards then were found to be variable, which was to be expected bearing in mind that nothing is specified by regulation or by-law and what has been achieved has been done on a voluntary basis by building owners and occupiers.
The variability extends not just to differences in the levels of recognition of what fire safety measures are necessary but also to the quality and design of alarm and fire equipment installations. Particularly in the case of alarm systems this has resulted in the reliability of some being questionable.

It is not expected that any improvement in the general standards will be achieved unless and until some authoritative guidance is in place. A basic regulatory framework, as recommended following the review in 1996, is still called for together within the necessary skill base within the fire service to take forward a coherent fire protection policy.

3.0 Fire Fighting

3.1 The Nature of Fire

Fire is a dynamic hazard. Once started, usually from very small beginnings a fire will grow in extent and ferocity until it is extinguished or burns out. Most non fire accidents or potentially dangerous occurrences such as road accidents, or a building collapse for example, are reasonably static once they have happened. The emergency services, on arrival at the scene, are able to assess the resources necessary to deal with incidents in the knowledge that their original judgements will be adequate. In these cases modest resources of personnel and equipment are able to deal effectively with such incidents, the only real penalty if resources are limited is that the time it may take to complete the work and remove all casualties from the scene may be longer than if more emergency personnel and equipment can be called upon.

A fire situation on the other hand, once established, will always continue to worsen until fire fighting resources of sufficient force can be brought to bear to bring it under control and maintain control until extinction is achieved. The alternative is that the fire will spread out of control and eventually consume the whole of whatever is involved or functionally destroy the structures involved.

There are many factors which determine how effective a fire brigade will be in bringing fire under control and achieving satisfactory extinction but two broad areas need examination at the outset These are speed of attack and weight of attack.

3.2 Speed of Attack

How quickly are fire fighting crews able to get to a fire and begin their fire fighting operations such as to become effective in taking control of the fire. The factors which effect this are :-

i How early is the fire discovered
ii How quickly from discovery is the fire service called
iii How quickly can the firefighters be summoned to the fire station
iv How quickly do they 'turn out' from the fire station
v How long will it take appliances to get to the scene of the fire
vi How quickly can they 'get to work' after arrival

Each one of these factors can be influenced by:-

i How early a fire will be discovered will depend on
  - i How remote the building is
  - ii Whether the building is occupied at the time or not
  - iii If so are the staff aware of the proper actions to take
  - iv If not does the building have automatic fire detection

ii How quickly from discovery is the fire service called depends on
  - i Available communications from the location
  - ii Attitude of the discoverer to urgency
  - iii The discovers knowledge of how to call the brigade
  - iv If discovery is by automatic detection is the alarm sent automatically to the fire service
  - v If not automatic what chance the alarm will be heard by someone who will call the brigade

iii How quickly are the firefighters summoned and do they turn out
  - i How effective is the alerting system
  - ii Are the firefighters full time at the station or on call
  - ii If on call how far are they from the fire station

iv How long will it take for appliances to get to the fire
  - i Where is the fire station located
  - ii What are the road conditions
  - iii What is the access to the building for a large vehicle

v How quickly can they get to work after arrival
  - i How close can vehicles get to the incident
  - ii What other means of access may be necessary, ie on foot over rough ground or offshore
  - ii How close and accessible are useful water supplies
  - iii How familiar are the firefighters with the building layout and entry points

3.3 Weight of Attack

What weight of fire fighting attack can be brought to bear on the fire at the outset so as to begin to impact on the fire and thereafter be maintained to achieve extinction. Factors effecting this are:-

i Size of the fire when fire fighting is commenced
ii Resources available to mount and sustain a fire fighting attack
iii Quantity and suitability of fire fighting media available
iiv Quality of command and effectiveness of fire fighting actions
v Nature of building structure and materials involved

Factors affecting are:-

i Size of fire when fire fighting is commenced
  i The larger the fire the less chance there will be of successful control
  ii Fire fighting may be limited to restricting spread

ii Resources available to mount and sustain a fire fighting attack
  i Number and type of fire fighting appliances making up the first attendance
  ii Number of fire fighting personnel making up the first attendance
  iii Distribution of specialist training and skills in the crews
  iv Availability of additional backup appliances
  v Fitness and stamina of fire fighters and availability of relief crews

ii Quantity and suitability of fire fighting media available
  i Availability of hydrants or other water supplies near the fire
  ii Availability of foam or other specialist fire fighting media

iii Quality of command and effectiveness of fire fighting actions
  i How well trained are incident commanders and what is the quality of supervision
  ii How well trained are the firefighters and how well do they perform as a team
  iii Environmental conditions pertaining at the time

iv Nature of building structure and materials involved
  i Level of combustibility of structure
  ii Presence of fuels or highly flammable materials
  iii Quality of compartmentation and fire safety design

4.0 Fire Brigade Provision

4.1 Assessment of Fire Risk

The resourcing and organisation of a fire brigade is based on an assessment of the fire risk which is present in the community and the areas for which the brigade will be responsible. This will be supplemented by provision for any additional public service responsibilities which the brigade may be given including accident rescue and special services.. Fire risk can be defined as a measurement of the likelihood of fire occurring combined with the potential for and impact of loss due to fire. Loss is considered in terms of threat to life, damage to property, destruction of investment and general infrastructure and loss of production and employment. The potential for loss and the impact of it will be judged on the basis of the number, density, size, use, complexity, construction, value, importance and fire performance nature of the predominant building stock coupled with the nature of
other installations present such as industrial plant, road, air and sea port facilities.

During the evaluation of the domestic (non marine) risks in Stanley the system used for the measurement of fire risk was based on the one which is used to determine the standards of fire cover for the whole of the United Kingdom. Due to the fact however, that the system takes account of backup resources which will not exist in the Falkland Islands, the translation of the result into a fire cover provision for Stanley makes allowances for this. The results have been compared with other international research information.
The outcome of the risk measurement is used to give an indication of what could be required by way of speed and weight of fire fighting attack to deal effectively with reasonably foreseeable occurrences. The worst imaginable case scenario has not been used to guide the result but an enhancement in some areas could well be appropriate for quality of service reasons based on views which take account of how the community sees its moral and commercial obligations to business and the community at large.

4.2 Standards of Cover Assessment

A standards of cover assessment (excluding for the purposes of this exercise, consideration of the marine risks) was carried out in Stanley between 24th and 28th February 1997 having regard to the methodology outlined in Fire Service Circular No 4/1985 - Report of the Joint Committee on Standards of Fire Cover, published by the Home Office, Queen Anne's Gate, London, dated 22nd May 1985.

Various features of the predominant building stock in the town are examined namely size, height, construction, use and proximity to other buildings and a

category of risk is established based on a scale from A to D. The category awarded then suggests an appropriate speed and weight of attendance which should be achieved for all incidents in the area being assessed.

Stanley is a small community and the buildings, while many are of combustible construction , are not over concentrated and nor are there any high rise or very large constructions. It was of no surprise to find that Stanley should be categorised for standards of cover purposes as 'D'. This equates to a large number of County market towns in the United Kingdom where fire cover is provided by a local retained fire station supported by wholetime crews from the County town or nearest larger community.

Using this categorisation of risk methodology it is normally considered adequate to make fire fighting provision in the area assessed for the overall predominant category and to rely on support from another fire station in the brigade or under a mutual assistance scheme to provide the additional resources where a higher attendance is required for calls to special risks.

There are a number of specific buildings in Stanley however, which would be regarded as special risks and therefore attract an initial weight of fire fighting attendance greater than the average. Additional resources cannot be called upon routinely for fire calls in Stanley therefore the provision of appliances and personnel will need to be based on that required for the special risks. This approach will offer guidance to what might be an appropriate provision for what can be regarded as normal first attendances. It does not take any account of additional backup or second calls.

This normal attendance in Stanley should be a minimum of two fully equipped main fire appliances with a total crew of at least eight and under the command of a junior officer incident commander.

4.3 Operational Readiness

Having established an appropriate level of provision of a fire brigade the most important aspect of the operational management of the brigade is the concept of perpetual readiness. The performance of a fire brigade is not measured by the number of incidents which it deals with but by its state of preparedness to deal effectively with whatever it is called upon to respond to.

It is all too easy, in a small community where the number of incidents is generally low, to organise for frequency rather than severity. In fact many fire brigades worldwide regard anything but a very low number of fires in relation to the size of the community as a failure of their overall fire protection objectives. The phenomenon of fire however cannot be cured, and while prevention is by far the best policy, the fire brigade must be properly equipped and constantly ready.

Readiness impacts on four areas, equipment, personnel, training and management.

4.4 Equipment

The provision of an adequate range and quantity of fire fighting equipment to meet the expected demand goes without saying. What can be regarded as appropriate is discussed under Standards of Cover - Para 4.2.
It is of course not sufficient to just purchase equipment. There must be in place a strictly regulated system of maintenance and standard tests together with, in certain key areas, a reserve capacity. Take for example fire fighting vehicles. The need for regular servicing and maintenance is fully understood by and vehicle owner except that the uncompromising standards which must be achieved for fire appliances requires a schedule of checking and repair which is never deviated from.
Fire fighting equipment such as hose, ladders, pumps, breathing apparatus, rescue tools and even gloves and personal clothing has to undergo scheduled standard tests and inspections on a daily, weekly, monthly and annual basis as well as after every use at a fire. The method and frequency of these tests have been established after many years of experience and are published in manufacturers specifications and Home Office guidance. The overriding objective must be to ensure that crews arriving at incidents must be able to rely totally on the serviceability of their equipment.

Equipment such as fire appliances and pumps which are part of the initial attendance at any incident and which need to be taken out of service from time to time for overhaul and repair must have a reserve provision. Sufficient reserve capacity exists in Stanley except in the case of a reserve major appliance.

4.4.1 Fire Fighting Appliances - Stanley

Following examination of the potential domestic and commercial fire risk in Stanley and an assessment of the standards of cover which appear to be appropriate, excluding the maritime risks, the following observations are made regarding fire and rescue equipment provision.

The basic category of risk, with a few specific buildings of a higher risk category which may be classed as special risks, calls for two major fire fighting appliances to be available at all times. These exist and together with trailer pumps and towing vehicles for water relay and Camp use as well as an accident emergency tender and light chimney / grass fire tender the front line appliance provision is sufficient.

As mentioned in Paragraph 4.3, Operational Readiness, however, the need for two general purpose pumping appliances to be available constantly highlights a need for a reserve in case of breakdown and during maintenance of either of the front line vehicles.

The position of the two remaining major appliances, the water tanker and the hose layer/general purpose lorry is considered in the light of present day requirements and the impending receipt of a new water tender due to be delivered from Carmichael of Worcester in June 1997. The tanker and hose layer were established at a time when the fire hydrant system around Stanley was incomplete. Considerable improvements have been made over the years and as these vehicles are old and now difficult to maintain the case for their retention is weak.

The loss of an auxiliary water carrying capacity could be partly restored and the need for a reserve appliance met if water tender F1100 was retained as a reserve after delivery of the new appliance. The water tanker and hose layer could then be disposed of. This would rationalise the fleet to provide greater flexibility and reduce bye one vehicle. The suggested fleet after delivery of the new water tender is as follows :-

1	Water Tender (new 1997)
1	Water Tender
1	Emergency Tender Range Rover
1	Chimney / Grass Fire Tender (Land Rover)
4	Trailer Pumps
4	Staff Cars / Towing Vehicles / General Transport (Land Rovers)
1	Reserve Water Tender / Water Carrier- 800 galls capacity (F1100)

4.4.2 Special Services

The term special services is applied to all emergency, humanitarian and public service activities which the fire brigade is called upon to perform in addition to its fire fighting role. The most obvious, and one for which it is usual for fire brigades to be specifically equipped, is life threatening accidents. While cutting casualties from the wreckage of road accidents is the most high profile of such events the range and variety extends from building collapse to fingers trapped in machinery and from the cat on a roof to a child with head in fence railings.
There is scope for the brigade in Stanley to undertake a wider range of special service activity, this is discussed in Paragraph 5.2- A Diverse Public Safety Service

4.4.3 Accidents

An accident rescue appliance which is well equipped for the type and range of accidents which can be reasonably expected is currently part of the emergency response capability in Stanley. No immediate changes are called for.

4.4.4 Hazardous Substances.

While at this time the number of incidents involving hazardous substances has been small and there is a limit to what might be encountered, that does not mean that no such emergencies will occur. The brigade has been called to a spill of swimming pool treatment chemical, which in its concentrated state is hazardous, and a number incidents involving petrol and other fuels. In the reasonable expectation that similar incidents will occur again chemical protective clothing, decontamination equipment and basic flammable and toxic gas monitoring equipment should be available. Only modest expenditure is called for but some training in the use of the equipment and decontamination procedures will be necessary. All can be undertaken locally by existing staff.

An emergency action and safety information database (Chemdata) which lists the hazards and operational action to be taken at incidents involving hazardous chemicals is available from the National Chemical Emergency Centre at Harwell. Bearing in mind the likely infrequent need for such information in the Falkland Islands it would not be economical to hold a local copy of the database
(approximately £2000 per annum) but it is recommended that an arrangement be entered into with a United Kingdom fire brigade whereby information could be obtained by telephone if and when required. Initial contact has been made with the Hampshire Fire and Rescue Service.

4.4.5 Water Rescue

It was noted during the review that the waters of Stanley Harbour in particular are quite busy with both recreational and commercial activity. This includes dinghy sailing, wind surfing and the transfer of tourists ashore from cruise ships. An accident resulting in a drowning cannot be ruled out.
In much the same manner as the RNLI around the coasts of Britain and fire brigades for rivers and lakes inland operate small rigid inflatable (RIB) boats on immediate call for water rescue, the same service could be provided by the fire brigade in Stanley.
Initial expenditure for a boat, engine and trailer would be required as well as formal training for at least one person who could train other crew members. The Fire Service College can give guidance on and facilitate the training needed.

4.4.6 Other Operational Equipment

Modern techniques for the ventilation of smoke from buildings or other structures both during and after fires have extended the use of mechanical fans which are designed to be used in a positive pressure mode. A petrol engine driven positive pressure fan could usefully be used both in support of operational fire fighting and training.
In training, until such times as better facilities can be provided, it would offer a means of evacuating smoke from the breathing apparatus training bunker if a trainee were to get into difficulty during a training exercise.

NB Further reference is made to Operational Equipment in relation to ship fire fighting. See Paragraph 7.3

4.5 Personnel

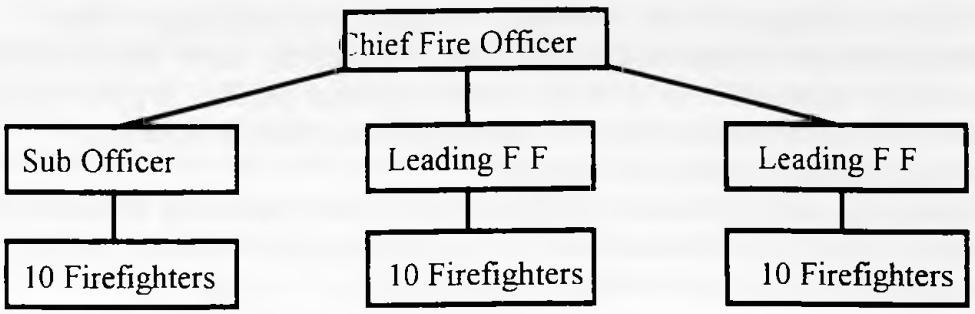
The continual availability of a sufficient number of fire fighting personnel with a balanced mix of specialisms and experience and including a designated crew commander is key to being able to ensure that the required number of properly manned fire fighting appliances will be able to respond when called to a fire. Additionally for large incidents and those where fire fighting operations become protracted there must be the ability to call upon extra personnel as well as maintain minimum resources in Stanley if the main activity is away from the town.

Because of the predominantly volunteer nature of the brigade, historically the structure has not had any mechanism aimed at ensuring that at least a minimum number of volunteers can be expected to respond when called. There have been occasions recently when, out of the full compliment, only a small number have turned in for a call, in fact, insufficient for a full crew.

Due to the heavy reliance on the voluntary giving of time by individuals it has not been thought possible to require or imply any obligation on the part of the volunteers to make themselves available at least for an agreed minimum amount of time. There is also no structure of officership. It is normal in a fire brigade structure to have a ratio of junior officers (Leading Firefighter or Sub Officer) of one to every six or seven firefighters.

An initial organisational structure which is based on the present establishment and which would involve the appointment of wholetime crew commanders and divides the volunteer personnel into 'call groups' aligned with the crew commanders is suggested.

The structure would be as follows :-



Each group would undertake first call status on a week by week basis over a three week cycle. At least an implied obligation would exist on the members of the first call group to respond when called, or if an individual in that group was aware that they would be unavailable at any time during the week they would have a responsibility to inform the group junior officer in advance so that alternative cover can be organised.
This model would lend itself easily to development into four groups if departmental growth were to be possible to take account of any expansion of roles.
(See - 'A Diverse Public Safety Service Para 5.2.)

4.6 Training

The subject of training is mentioned frequently throughout this report in connection with a wide variety of topics. This is inevitable because fire fighting is a complex activity involving considerable dexterity which has to be undertaken by a team of people with urgency, in a co-ordinated manner and in safety.
No one would think of putting a football team on the field or a military platoon in to battle unless they were 'fighting fit'. This does not just mean physically fit. To achieve this it means regular activity (at least twice a week) as a team and periodic exercises involving multiple teams.

Structured training based on standards related to the jobs being performed is necessary to achieve and maintain the necessary levels of knowledge and competence of each and every operational member of the brigade. Not only are the high levels of competence necessary for efficient performance of the job, it is the means of achieving acceptable levels of personal safety.
The initial training of a wholetime professional firefighter should be based on the United Kingdom recruit course which including initial breathing apparatus training will be fifteen weeks at a specialist establishment. Recruit probationary training will continue for a further year of service and where additional skills

are required, such as aviation or marine fire fighting, appliance driving, vehicle maintenance or fire prevention a further two years should be allowed for.

Continuation training to maintain the state of readiness requires that equipment and procedures are exercised regularly in, as far as can be achieved, realistic conditions. This means that firefighters should train as often as possible as a crew under the command of a crew commander or incident commander. It is as important that the commander has the opportunity to exercise his role as it is that the crew members exercise theirs. An individual training record system should be in place to enable monitoring of the balance and currency of the training of each member of the operational staff.

It should be a training objective for all wholetime professional junior officers to be trained at both Crew Command and Watch Command levels according to the United Kingdom progressive training structure.

With such a very small group of wholetime personnel the opportunities to train as a crew will be limited and often lost altogether if just one member is not available. Also with a large group of volunteer firefighters the priority for wholetime staff will always be the preparation and supervision of training for them. It is not sufficient for the only opportunity for the wholetime staff to engage in practical training to be with the volunteer members on their training night.

Fire brigade establishments are usually calculated with a training reserve which helps to maintain the minimum number of men on duty for meaningful training activity to be undertaken at any time and allows individuals to be away on training courses or leave while not depleting the operational strength. It could be regarded as a unreasonable to expect to hold an additional member of staff just against a training reserve in such a small brigade but it is in this circumstance that need is greatest. Other ways need to be explored of making the wholetime unit large enough to be fully effective in its own practical training activity.

A considerable investment is made in training and therefore when trained a firefighter is a very valuable asset. Proper training and the gaining of important experience takes time and a small department will always have great difficulty in making good any loss of staff. This should be reflected in the employment conditions of firefighters and officers to ensure that staff turnover is very low. See Conditions of Service - Paragraph 6.1.

4.6.1 Local Training Facilities

There are no specifically designed or allocated practical fire fighting training facilities locally. Arrangements are ad hoc with the Chief Fire Officer making use of an area of waste ground where open fire situations are staged

and an old concrete bunker which is used mainly for breathing apparatus training.
Bearing in mind that, of necessity, all training of volunteer personnel has to be done locally, at present a full range of practical training under properly controlled safety conditions is not possible.

From the fire brigade point of view the location of the bunker is suitable and if there are no other difficulties with that location and some additional space around it could be set aside a suitable firehouse, breathing apparatus chamber and mixed practical training area could be established. Some site works, additional concrete construction and electrical power for lighting and general services will be required.
Detailed suggestions for the design of the site can be provided in the longer term but as an interim measure a means of evacuating smoke from the bunker quickly during training as a safety measure is needed. See Paragraph 4.4.6.

4.7 Major Incidents

It will never be possible or sensible to try to equip and staff the fire brigade locally to deal comfortably with the worst imaginable major incident senario. It is sensible however to plan as far as possible in advance and to identify the location and availability of all of the additional resources which could be called upon by the fire service.

During the review, and when discussing additional fire fighting assistance, the presence of a fire fighting capability at Mount Pleasant Airport was mentioned a number of times. What might be available from MPA however, is not clear even to assist at a major incident. If flying activity was taking place or a Tri Star was en route over the South Atlantic at the time an incident occurred the effect of removing fire fighting capability from the base would be to close the airport. This could clearly not happen.

Discussions however should take place at a senior level with the military commander at MPA to establish what trained fire fighting assistance, equipment and other general help if any could be available and under what circumstances.
Additionally the location and availability, with drivers or operators, of other vehicles, cranes, machinery, vessels etc. should be established and locations for the reception of casualties and displaced people should be identified.

The existing major incident plan may need to be enlarged to include the specific needs of the fire service and the command relationships between the fire service, other public services and the military at fires.

4.8 Camp Settlements.

The provision of fire fighting facilities across the Falkland Islands, apart from that required for air operations, has not hitherto extended to the Camp settlements beyond those which can be reached from Stanley. In an isolated number of cases settlements have purchased equipment which has become surplus from the fire service in Stanley or made their own provisions in other ways. However, no checking, maintenance or training programme has been established and reports are that, even the equipment which does exist would not be operable now.

Regarding the provision of a fire protection service for the settlements it is clearly a political and financial decision for the Falkland Islands Government as to whether this should be provided as a public service or not. There is however an example which may be useful in considering just how an effective provision could be made.

In the highland and islands of north and west Scotland the Regional Councils are the fire authorities for the whole of their areas but in remote places and on a number of the islands volunteer and self help fire fighting teams exist. The council makes provision of appropriate portable or mobile (usually trailer but in some cases Land Rover) appliances which are checked, tested and where necessary serviced by the Regional Fire Authority staff. Professional fire brigade staff who travel out at approximately six monthly intervals also give training in the handling of the equipment and fire prevention advise.

In the Falkland Islands regular visits are already made to settlements where air strip fire fighting trailers are provided. If the provision of fire protection for the settlements were to be extended to include the domestic risks there may be room to economise on staff time and travelling costs if all fire related activity were to be managed in one organisation. See Para 5.2.1.

5.0 Fire Service Organisation

The Falkland Islands community is an advanced first world society and as such expects appropriate standards of competence from its public services and also international standard of safety management of hazardous occupations such as fire fighting.

The Fire and Rescue Service in the Falkland Islands is subject to two features which impact greatly on its organisation and management. Firstly, the size of the community is small and this will always result in a conflict between the critical size of the fire service organisation which is needed for it to be fully effective and the cost of the service in relation to the overall cost of public services in the community. Secondly, the remoteness of the Falkland Islands means that no outside assistance or mutual aid scheme can ever be called upon which can be useful in the time scale of a fire incident.

With no outside support available all of the organisational, training, maintenance and emergency management infrastructure must be embodied within the small fire brigade structure. This combined with the fact that services such as specialist training have to be purchased overseas makes the fire service expensive per head of the population when compared with a larger or less remote community.

5.1 The Impediment of Size

During the conduct of the research part of this review and during discussions with the Executive Council it was identified that there are a many 'half jobs' in the Falkland Islands. This phrase well describes the inherent difficulty of establishing and economically staffing public services in a very small community.

The reality however is even more difficult because where the perceived size of the job results in only a very small department being established and where the function of the department is essentially a team activity there is the danger of the department being constrained in its overall effectiveness. Jobs like those in the Fire Service may be regarded as small in volume if the number of fires is taken as a measure but they are no smaller than their counterparts in other parts of the world in terms of what they may be called upon to deal with, the training they require and the risks they face.

There is evidence that the wholetime contingent of the fire service in Stanley is below the critical size at which it can undertake, on a continuous basis, the variety and quantity of local and external training which is necessary to ensure effectiveness in the whole range of operational activity and incident command.

5.2 A Diverse Public Safety Service

The question of size, particularly of the professional element of the Fire Service, is a limiting factor to progress at present. Even the need to appoint a fire safety officer as recommended following the Review of Fire Safety in January 1996 has clearly not been regarded as strong enough to act upon. A simple increase in the number of wholetime fire service staff to a fully effective level is even more difficult to argue. An answer may lay in examining the extent and diversity of the services which are provided by the Fire Service.

There are no rules which suggest that the role of a Fire Service in the community should be limited to just fire and rescue. There are indeed currently some fire and rescue activities which are not active in the Falkland Islands and another which is seperately managed. There may also be other services which at present would be regarded as too small to be considered viable which could be undertaken by a multi role Fire, Rescue and Safety Service.

Areas appropriate for immediate consideration are :-

i Aviation fire fighting and rescue
ii Fire protection for the Camp communities
iii The administration of fire safety in Stanley
iv Inshore water rescue
v Health and safety
vi Pollution prevention and control

5.2.1 Aviation Fire Fighting and Rescue

In such a small community it is difficult to see any justification on the grounds of effectiveness or efficiency for the fire and rescue services for Stanley Airport and aviation fire protection being managed seperately from the Falkland Islands Fire and Rescue Service. This has the effect of fragmenting the modest recourses which do exist and reduces the effectiveness of both departments.

There appears to be no structured continuation training arrangements for the Airport fire fighting crew and no facilities for training. Their effectiveness if an aircraft incident were to occur on the airfield must be in doubt.
A member of the Airport fire fighting staff carries out tests and training at the Camp airstrips. To regularly travel to the Camp settlements in such a restricted capacity is an inefficient use of the limited staff available bearing in mind the need to improve the provision of general fire protection for the settlements.

To enable the most flexible and efficient use of recourses all civil fire fighting, rescue and fire safety activity in the Falkland Islands should be managed in one organisation, the Fire and Rescue Service.

5.2.2 Camp Communities

A suggested example of an approach to providing a fire protection service to the Camp communities is outlined in paragraph 4.8 of this report. This calls for regular visits by a member of the fire service to inspect and maintain equipment as well as give advise about fire prevention and fire fighting. This service would have a staffing implication but could be efficiently undertaken if aviation and general fire protection were managed together.

5.2.3 Administration of Fire Safety

The subject of fire safety was examined in some depth and reported on following a review carried out in January 1996. A recommendation was made that consideration should be given to the appointment of a fire safety officer to take forward a programme of premises inspections and fire prevention advice.

This remains an objective of effective fire protection and is further discussed in Paragraph 2.0 of this report.

In addition to the inspection of buildings for fire safety purposes the collection of information for operational pre planning is a key part of fire brigade management. This includes ships in the harbour which is further discussed in Para 7.4.

5.2.4 Water Safety

The management of this additional area of safety special service in Stanley would not call for specific or additional staff. Some extra training would be necessary to get the service operational but this could easily be managed within a slightly enlarged multi role service.

5.2.5 Health and Safety

The importance of good Health and Safety at Work practices are well recognised internationally. While the implementation of health and safety in places of work is the responsibility of employers and managers there will be a requirement for advise and guidance or in some cases enforcement.
This is another subject area where, due to the small size of the community, it will be difficult to administer the topic economically unless it is combined within a multi functional department. A diverse multi role fire service is an option.

5.2.6 Pollution Prevention and Control

The monitoring, control, planning and response for pollution occurrences is also likely to be a 'small job' but no less important for its size. Small that is until a pollution incident occurs especially if it affects the wildlife rich coasts of the Falkland Islands. As with so many emergency activities good pre planning and preparation is the key to proper handling of incidents when they do occur. The aquisition of the skills and equipment needed to handle such incidents and the preparation of plans is another service that the fire service could be entrusted with.

5.2.7 Department Establishment

In order to become a truly effective department, able to provide a full fire protection and safety service to the Falkland Islands community and to maintain the necessary standards and diversity of training to ensure effective performance with safety, the structure of the department will look like the following.

Chief Fire Officer

Sub Officer Operations, Training and Equipment

Sub Officer Fire Safety and Health and Safety

Leading Firefighter Crew Commander Operations

Leading Firefighter Crew Commander Operations

Leading Firefighter Crew Commander Aviation

Firefighter Aviation

Firefighter Aviation

30 Firefighters Volunteer

6.0 Fire Service Staffing

The fire service will only operate effectively if it is able to build up and maintain a substantial core of highly trained and experienced personnel. It is the professional element of the service which provides this core and on to which the responsibility rests for training, managing the brigade and commanding the crews at incidents.

Professional fire fighter training is expensive and time consuming and the aquisition of meaningful experience together with advanced fire fighting and incident command training takes many years. Trained and experienced fire fighters are an asset to the community especially in Stanley where they have to be fully self sufficient. They should be able to regard the service as a lifetime career. To gladly commit themselves to arduous training overseas and accept long and unsocial duties in the knowledge that they enjoy conditions of employment which properly reward their commitment and ensure that they are able to remain in the public service. The recent resignation of Jonathan May who was the only young professional firefighter in the FIF&RS trained to current UK levels and who achieved a high standard in a crew commander course at the Fire Service College only last year is a loss which the brigade cannot afford.

It is unfortunate timing that this wide ranging review of the structure and operation of the fire service should be taking place after a job evaluation exercise had been all but completed in which judgements have already been made about the roles, skills and relationships to other professions of members of the fire service. It would have been better if evaluations could have been done in the light of this report and the information it offers about the work of the professional firefighter.

6.1 Conditions of Service

Conditions of service and remuneration for professional firefighters should take account of :-

- The wide range of skills required
- Requirement to undertake continual training
- Need to undertake regular specialist training overseas
- Requirement to maintain high level of physical fitness
- The inherent risk
- Need to work flexible duty and provide additional standby duty
- Unsocial working on weekends and public holidays

Additionally, pension provisions should be in place to cater for :-

- Injury which could prevent further employment as a fire fighter
- Retirement at age 55. (Physical demands of fire fighting are unreasonable and potentially unsafe for people above this age)

6.2 Recruitment Standards

To ensure that personnel recruited to the fire service will be able to respond effectively to the physical and technical demands of training and the job itself a series of standard entry criteria should be established.

These criteria will specify a testing mechanism to establish an appropriate level of academic and technical acuity. The standards expected for professional and volunteer applicants will be appropriate to the role and may not need to be the same particularly academically.

Appropriate standards should be set for physical proportion, strength, eyesight, general health and fitness. These standards should be related to those necessary for effective performance of the work of a firefighter and handling of the equipment.

6.3 Volunteer Recruitment

In countries which traditionally rely heavily on volunteers to staff fire brigades there is seldom a difficulty in recruiting volunteers from a young age. Much of the attraction stems from the esteem with which the Fire Service is held within those communities and the strong sense of community spirit felt by the volunteers.

The same sentiments were noted among the volunteer members of the Fire Service in Stanley who are much more concerned about what they are able to contribute rather than what they get out of being a member of the Fire Service. It was though noticeable that very few new young members are joining the Service as volunteers.

This trend is not particularly peculiar to Stanley. A way which many European fire brigades have of attracting new young interest is to run a youth section or junior volunteer firefighter scheme. This provides an opportunity for young people to develop an interest in the Fire Service before they would otherwise be old enough to join wholetime or as a full volunteer. In such schemes it is usual for a member of the brigade, wholetime or volunteer, to act as the scheme leader. This role naturally calls for someone with an interest in supervising young people and organising activities with them. It can however be a rewarding and productive activity.

Such a scheme in Stanley could be effective with just two or three people and if it were decided to enlarge the range of activities undertaken by the Fire Service, additional opportunities would exist to attract interest from active young people.
Every effort should be made to keep the volunteer establishment up to strength.

7.0 Marine Fire Risks

The position of Stanley as a significant port in the South Atlantic and the level of maritime activity around the Falkland Islands represents a potential demand on fire fighting resources and expertise which is disproportionate to that which can be expected in the rest of the community. The considerable growth in fishing activity and tourism, which brings regular visits to Stanley by large vessels and cruise ships has added considerably to the position and recent experience has confirmed that fires on ships are a real issue for the Falkland Islands.

What is it that makes ship fire fighting so different and specialised because no-one should be in any doubt that it is. A ship is in effect a multi storey building with as much as half its volume at basement level. A large passenger cruise ship or container vessel may have as many as seven deck levels below an entry port in the hull one deck below the weather deck. Above this there may be another seven decks of accommodation and superstructure giving the equivalent of a fourteen storey building.

This great structure is in effect a heavy machinery plant, a hotel, a warehouse, workshops, leisure centre, power station, bulk oil storage depot, offices etc etc all rolled into one and floating in water. Moreover it is constructed predominantly of steel which, in fire conditions, has its own characteristics.

7.1 Ship Firefighting

With limited and finite resources of personnel and equipment there are a number of difficulties which will be encountered when dealing with fires on ships compared with other types of structure and buildings on land. Fire fighting operations are invariably protracted. Unless the ship is along side a dock, the sheer logistics of getting to the vessel with sufficient men and equipment to mount an attack are magnified out of all proportion. Even if a fire is discovered and reported early the extra time involved in mounting an attack gives extra time for development and spread.

It is likely that by the time fire brigade crews begin to fight a fire they may have already been engaged in arduous work for some time. They then have to set to work in conditions which are most likely to be exhausting in the extreme both physically and mentally. A fire in an inboard compartment or in spaces below water line cannot be accessed without crews entering the ship wearing breathing apparatus. Just the operational requirements of strictly adhering to breathing apparatus control and safety procedures adds a demand for personnel and equipment over and above that which is working at the front line.

The sheer logistics of keeping a small fire fighting effort sustained below decks on a ship will call for levels of personnel and equipment support which could stretch a large fire fighting force. Even in dock where access to a vessel will be easier it will still be necessary to rotate crews and regularly relieve those engaged on the most arduous tasks.

There are three broad scenarios which could be envisaged in connection with ship fires in and around Stanley.

1 A small or modest fire below decks or in internal structure with uncomplicated access which can be fought safely by a limited number of breathing apparatus crews entering the ship. Even this apparently straightforward case will require properly trained personnel and expert incident command.

2 A fire on deck, in an open hold or above deck accommodation spaces which can be fought from the deck surface, from the dock side or from vessels alongside without the need for crews to enter the structure. Again training, incident command and logistics management will be of utmost importance for safety and success.

3 A fire which has achieved such proportions that it is beyond the capability of available resources to bring under control or is in an area inside the vessel where access is difficult and it would not be possible to safely place crews inside the ship to fight the fire at close quarters. It may also be considered to be too hazardous for crews to enter to deal with even smaller fires on ships where there may be added risks such as on fuel tankers or where hazardous cargoes are carried. There being no other higher level fire fighting capability, a ship in these conditions could well be totally destroyed.

The first two cases represent situations where it is reasonable to expect that, with adequate training and under normal circumstances, the fire brigade in Stanley could positively fight a ship fire safely and with an expectation of success. There are many variables however in all fire situations especially ship fires and the potential will always exists for a fire to develop to a case 3 scenario in spite of fire fighting effort. The most important feature of this situation will be recognition of the fact by the incident commander and his decision to withdraw crews before they become at risk.

The third case, while one which may be hard to contemplate and may be the least likely, has to be accepted as possible. After all that is what happened to the great liner Queen Elizabeth in Hong Kong harbour.
It may be necessary to tow such a vessel away from the dock, or from wherever it is, to shallow water in an area where pollution can be controlled and allow it to burn out.

It seems to be stating the obvious to say that decisions taken by the incident commander are crucial at every stage of a fire but it is worth restating particularly in the context under discussion. Decisions, for example, as to whether the environmental conditions are such that fire fighting can or cannot take place off shore, whether the fire can or cannot be fought from inside or outside the vessel and at what stage the fire is not being controlled and crews should be withdrawn for safety. Each will be based on the knowledge and training of the commander and his awareness of what is possible with the resources at his disposal and not least his understanding of the potential consequences should he decides not to put firefighters aboard or to withdraw after having made an attempt.

It is a natural instinct of any fire fighting crew not to accept defeat if at all possible. If the incident commander is fully aware that not to send crews inside a ship or to withdraw them for safety reasons will certainly mean that the fire will grow uncontrolled and may lead to the eventual destruction of the whole vessel, there may be a tendency to over stretch resources. The level of scrutiny in hindsight which he can expect after making such a decision, may also be an influence, even if only unconsciously.

7.2 Training

Training for the techniques and procedures involved in fighting fires on ships is a particular need of the fire service in Stanley.

Two specific areas of ship fire fighting training are necessary, incident commander and junior officer, and fire fighting crews. That for incident commanders and junior officers (crew commanders) will need to be undertaken at a ship fire fighting training establishment but, having trained the professional officers, and if suitable facilities are identified locally (See paragraph 4.6.1), crew training can be undertaken in Stanley.

The first step should be to provide for the Chief Fire Officer to attend the Marine Fire Fighting Course (MFF) at the Fire Service College. This is a three week course and should be viewed as the start of a structured programme of ship fire incident officer specialist training.

7.3 Equipment

A general increase in the number of fire fighting appliances and equipment is not justified in response to marine activity except that some modest increase in the number of breathing apparatus sets to twenty would improve flexibility.

Specifically for ship fire and offshore activity (Paragraph 4.4.5 is also relevant) life jackets or industrial standard buoyancy aids should be available for crews being transported offshore.

In circumstances where it is not possible or desirable to enter lower or internal compartments to fight a fire there is a limited number of approaches which can be taken to attack a fire depending on the extinguishing media available and the fixed fire fighting installations which may be installed on the vessel. Some ships, cruise ships in particular, may have a sprinkler system fitted and others, may have fixed carbon dioxide, steam or foam systems aboard.

The fixed system can be used if not already activated automatically or by the ships crew and if additional carbon dioxide is available it may be possible to pump it through the ships fixed pipe work. Alternatively carbon dioxide can be introduced to internal spaces from outside in a number of ways including holes punched in the side of the ship.
Medium expansion foam is an effective extinguishing media where fires involve fuels or where it can be applied into open hatches.

Reasonable quantities of foam compound appear to be available in Stanley but the total quantity and the location and suitability of additional supplies should be examined.

Further investigation should be undertaken to ascertain the feasibility of holding bulk carbon dioxide in a useful quantity and in a manner which would allow it to be mobile. Hose and equipment for application would also be required.

7.4 Pre Planning

The whole process of pre planning is a matter of making as many decisions as possible in the cold light of day about the way incidents will be dealt with before they happen rather than having to do everything on the run and in the absence of a good deal of information which could have been researched when time allowed.

Initially, the extent of the responsibility of the Falkland Islands Fire and Rescue Service to fighting fires on ships should be re-examined and stated together with a definition of the area and distance offshore in which they are expected to operate.

Plans for gaining access to vessels offshore and the methods which will be used to support fire fighting operations on ships away from the dock side should be firmed up and tested periodically by exercise.
The more work that is done with ship operators and crews to plan and prepare for incidents on ships before they occur the greater chance there will be of a safe and successful outcome if one does occur.

The simple fact of knowing in advance whether there is a fixed fire fighting system on the ship and whether it is likely to be in working order will enable a better decision to be made about fire fighting tactics. A knowledge by way of routine visits onboard of the general layout, level of maintenance and housekeeping to be found on vessels is invaluable when decisions have to be made about sending fire fighting crews inside when the ship is on fire and full of smoke.

It is understood that inspections of equipment onboard fishing vessels are by the Fisheries Officer in connection with the granting of fishing licences. The provision of fire fighting equipment and the training of ships crews in accordance with international standards should also be part of the licensing conditions.

Either by way of new local regulation if necessary or under powers already in existence fire service officers should be empowered to go aboard vessels in Stanley Harbour for the purpose of identifying fire risks, checking the serviceability of fixed fire fighting equipment and gaining familiarity with the layout of the vessel and the nature of its cargo.

Review of Fire Protection in the Falkland Islands

Summary of Observations and Recommendations

Fire Protection of the Community

1 Effective fire protection in the community is a balance of fire prevention, fire safe design and management of buildings and fire fighting. The Fire Service should be resourced, equipped and where necessary supported by regulations to be active in all three areas. (Para 1.1.)

2 Good fire prevention stems from a fire safe attitude in the community. This is developed and maintained by fire prevention education starting at school age and regular publicity of good fire prevention practice. (Para 2.1.)

3 Fire safe design and management of buildings is most effectively achieved by a simple regulatory framework which sets minimum standards of fire safety in buildings. Such a regulatory framework should be formulated and administered by the Fire Service. (Paras 2.2. and 2.3.)

4 An assessment of the land based fire risk in Stanley suggests a comparison with many rural market towns in Britain where fire fighting provision would be a local retained fire station supported by the professional service from the County Headquarters or the nearest larger town. (Para 4.2.)

5 The normal initial fire brigade attendance to property fires in such towns is two major appliances with a minimum of eight firefighters with a Sub Officer in command. Further assistance can be called from surrounding areas when required. (Para 4.2.)

6 In Stanley all of the management, training and maintenance infrastructure must be embodied within a single fire station structure which calls for a core of highly trained professional staff to manage the service, supervise standards and take command at incidents. (Para 5.1.)

7 The fire service in Stanley must be capable of sending a minimum of two fully equipped and staffed fire fighting appliances under the correct level of supervision to any incident in their area at all times. (Para 4.2.)

8 Additional backup firefighting facilities must be maintained to provide support at larger incidents when required and to respond to other calls when the primary resources are committed. (Para 4.4.)

9 The additional pumping capacity currently provided by trailer pumps is considered to be adequate. (Para 4.4.1.)

10 The accident rescue (Emergency Tender) appliance and equipment is considered to be adequate. (Para 4.4.3.)

11 To ensure that two front line appliances can be maintained always available, a reserve major appliance is required in the fleet. An opportunity exists to achieve this by retention of an existing appliance following receipt of the new vehicle currently on order. (Para 4.4.1.)

12 Bearing in mind that the mains water supply in the Stanley area is now good and the Water Tanker appliance is old and difficult to maintain, the case for its retention is weak. Retention of an existing appliance as a reserve would preserve some additional water carrying capacity. (Para 4.4.1.)

13 The Hose Layer/GP Lorry appliance is past its useful life. (Para 4.4.1.)

14 The potential for the use of a positive pressure fan in adopting modern ventilation techniques in fire fighting should be further examined. Such a fan would provide a smoke evacuation facility for safety purposes in the present breathing apparatus training bunker. (Para 4.4.6.)

15 No provision exists for the safe handling of incidents involving toxic or hazardous substances. A basic provision of chemical protective clothing and decontamination equipment should be obtained and staff trained in its use. (Para 4.4.4.)

16 The possibility of setting up an arrangement with a UK Fire Brigade for the supply of hazardous substance information by telephone or fax when required to deal safety with an incident should be explored. (Para 4.4.4.)

17 Basic battery operated multi gas instrumentation for the detection of flammable, explosive and toxic atmospheres should be obtained and form part of the Fire Service standard equipment. (Para 4.4.4.)

18 To help to ensure that sufficient firefighters to staff an initial attendance to a fire can be relied upon at all times, a primary and secondary call arrangement and a system of booking availability should be introduced for the volunteer personnel. (Para 4.5.)

19 The current establishment of thirty volunteer staff is reasonable assuming the wholetime resources available for proper training and supervision. The potential to over stretch resources at prolonged incidents will always exist therefore every effort should be made to recruit up to the maximum.(Para 4.5.)

20 Formal discussions should be entered into with the military to establish what if any trained fire fighting assistance, equipment and other help could be available from Mount Pleasant in the case of a major incident. (Para 4.7.)

21 A management structure should be introduced which provides sufficient junior officers to operate a primary and secondary call arrangement, command crews at incidents and support a proper command structure at large incidents. (Para 4.5.)

22 The wholetime professional establishment of the fire service should be sufficient in number to ensure the proper and efficient management, training and command of the service and the delivery of effective fire protection to the community. Some opportunities are suggested in this report which would allow a modest enlargement of the establishment with an increase in effectiveness of the fire service and at the same time improving the range of services provided.

23 It should be a professional development objective for all wholetime junior officers to be trained at both Crew Command and Watch Command levels according to the UK progressive training structure. (Para 4.6.)

24 The wholetime professional establishment of the fire service should include one officer specifically trained as a fire safety officer. (Para 5.2.3.)

25 It is expensive and takes many years to train a competent professional firefighter and incident commander. Career conditions for firefighters should reflect this and should be attractive enough to retain experienced staff in the service. (Paras 4.6. and 6.0.)

26 Command at fires is supported by good information about the layout, contents and processes carried on in buildings. Inspections of major risks, including ships, to gather such information should be regular part of pre fire planning. (Paras 5.2.3. and 7.4.)

27 The management, training and supervision of the aviation fire fighting unit at Stanley Airport should be part of the Falkland Islands Fire and Rescue Service. In such a small community there is no logic in having two fire service organisations where both are less efficient by virtue of their small size. (Para 5.2.1.)

28 Given the recreational use of the waters of Stanley Harbour and the practice of cruise ships transferring visitors ashore in small craft, an inshore water rescue capability could be called for when least expected. The Fire Service is the appropriate body to operate a service as do many UK Brigades with rivers and lakes inland. (Para 4.4.5.)

29 The importance of good Health and Safety at Work practices in the community are recognised. An appropriate person properly trained within the Fire Service organisation could advise and monitor standards thus meeting a function which does not yet exist in the community. (Para 5.2.5.)

30 The Fire Service might more productively be viewed as a Fire and Safety Service. That is, in addition to its fire fighting and fire safety roles, to be responsible for general safety, water safety and health and safety at work etc.

31 The provision of fire protection services for the Camp communities should be clearly stated as a function of the Falkland Islands Fire and Rescue Service. (Para 4.8.)

32 Equipment provided to the Camp communities for self help fire fighting purposes should remain the property of the Falkland Islands Fire and Rescue Service and should be inspected and maintained by them regularly. (Para 4.8.)

33 A structured programme of fire safety and fire fighting training should be in place for the Camp residents. This could be co-ordinated with the programme of maintenance of the general fire fighting and, where provided, air strip fire fighting equipment. (Paras 4.8. and 5.2.2.)

34 A practical fire fighting and breathing apparatus training facility should be established locally to enable routine continuation training to be undertaken to modern standards in safety. (Para 4.6.1.)

35 A structured continuation training programme and individual training record system should be established which sets at least minimum training requirements for wholetime and volunteer personnel. (Para 4.6.)

36 A framework of minimum physical and academic standards should be established for recruitment to the service to ensure that entrants will be able to respond effectively to the demands of practical and technical training.(Para6.2.)

37 In a small community where the recruitment of volunteer staff is difficult it may be possible to generate interest in the fire service by young teenagers by the creation of a junior firefighter scheme. A wider role for the service would probably improve the attraction of such a scheme to young people. (Para 6.3.)

Marine Fire Risks

38 The extent of the responsibility of the Falkland Islands Fire and Rescue Service to ship fire fighting offshore should be re-examined and the boundaries clearly stated. (Para 7.4.)

39 The intended ways of gaining access to ships away from the dockside and the methods for supporting fire fighting on board ships in open water should be planned in advance and tested by exercises. (Para 7.4.)

40 It must be clearly understood that the firefighting demands which can arise from fires on ships are likely to be significantly greater than anything that could be expected under normal circumstances on shore. (Para 7.0.)

41 Ship fire fighting is always highly demanding in terms of the need for specialised training, logistical support and the demands on crews. (Para 7.1.)

42 All wholetime professional firefighting staff should receive specialist ship fire fighting training and the Chief Officer and junior officers should receive ship incident command training at an establishment equipped to undertake such training. (Para 7.2.)

43 A general increase in the provision of fire fighting equipment for ship fires is not appropriate but further investigations should be carried out to examine the potential value of having bulk carbon dioxide or high expansion foam available locally. Some modest improvement in the levels of breathing apparatus and safety equipment is justified. (Para 7.3.)

44 It must be accepted that the potential exists for a fire on a ship to become of such proportions or be so inaccessible as to be beyond the capability of fire fighting resources in the Falkland Islands to handle. (Para 7.1.)

45 The officer commanding firefighting operations at a ship fire in the Falkland Islands will always be aware of the finite nature of the resources at his disposal. Judgements as to whether to aggressively fight a fire and commit crews, control spread and defend boundaries or withdraw and allow to burn, must be made on the basis of what is possible and safe for personnel.(Para 7.1.)

46 A great deal can be achieved in the area of ship fire protection as in any other by fire prevention and proper maintenance of onboard fire equipment. As part of the fishing licensing scheme the standard of onboard fire protection equipment should be open to examination and the possibility should exist of a refusal of a licence where standards a clearly below international requirements. (Para 7.4.)

47 The Fire Service officers should be empowered to go aboard vessels in Stanley Harbour for the purpose of identifying fire risks on board, checking the serviceability of on board fire fighting equipment, and gaining familiarity with the layout of the vessel and its cargoes. (Para 7.4.)

Addendum

Due to the limited time available to conduct and report upon what is effectively a root and branch review of Fire Protection and Fire & Rescue Service provision in the Falkland Islands, this report is largely strategic and in some cases conceptual.

Where appropriate some detailed proposals are made, but in other areas, such as the wider role for the fire service in the community, the actual structure of training, local training facilities, specialist equipment for marine firefighting etc, more detailed research and discussion will be needed before implementation.

This more detailed work can be taken forward, with support from The Fire Service College if desired, probably as part of a developmental programme for emergency and safety services in the Falkland Islands according to the priorities set by the Executive Council.

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