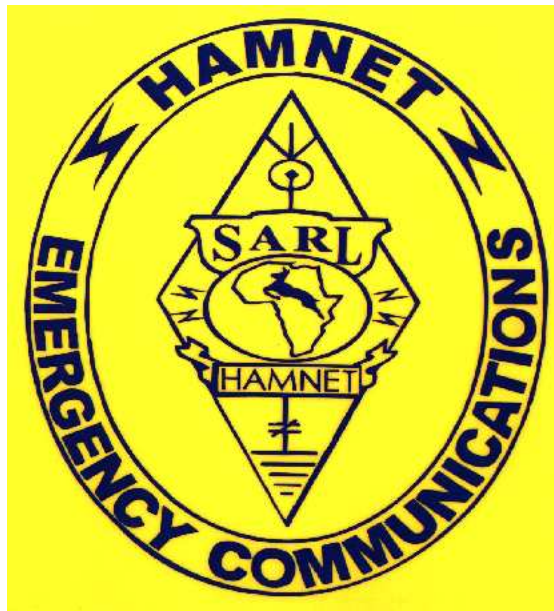


# HAMNET KZN MANUAL

THE  
AIMS, OBJECTIVES  
PROCEDURES AND REQUIREMENTS  
OF  
HAMNET  
IN AN  
EMERGENCY



## **FOREWORD**

HAMNET is a division of the South African Radio League charged with the handling of emergency communications as a service to the community, local authorities, disaster management and the government of the day.

This service is in accordance with the conditions of the League which provides that Radio amateurs place their services at the disposal of the government, in time of need.

Members of HAMNET must therefore train themselves to become proficient in accurate message handling under emergency conditions and be prepared to operate under any conditions and from any location when the need arises.

Messages must be transmitted quickly and accurately and this handbook is designed to be used as a guide to assist HAMNET members in developing their skills, operating procedures and to function effectively in serving the community.

I would like to thank all those amateurs involved in gathering information to improve efficiency which we have been able to incorporate in this handbook.

Thanks must also go to those HAMNET members who produced the handbook of the past and especially Glen Duffy ZS5GD and Tubby Waldeck ZS5TUB who created the first Hamnet KZN handbook, and Keith ZS5WFD for proof reading and support.

It is on this sound base that this new edition of the HAMNET KZN handbook has been compiled

Keith Lowes ZS5WFD  
Provincial Director Hamnet KZN  
September 2004

# TABLE OF CONTENTS

FOREWORD

SECTION 1

TABLE OF CONTENTS

DEFINITIONS

CHAPTER 1 – ESTABLISHMENT, OBJECTIVES AND AIMS

1. ESTABLISHMENT OF HAMNET
2. OBJECTIVES AND AIMS

CHAPTER 2 – ORGANISATION, COMMAND AND CONTROL

1. ORGANISATION
2. DIRECTORS
3. TERMINATION OF SERVICE
4. NATIONAL COUNCIL
5. PROVINCIAL COUNCIL

CHAPTER 3 – POWERS, FUNCTIONS AND RESPONSIBILITIES

1. NATIONAL DIRECTOR
2. PROVINCIAL DIRECTORS
3. PROVINCIAL DEPUTY DIRECTORS
4. PROVINCIAL ASSISTANT DIRECTORS
5. EMPLOYMENT OF HAMNET IN TIMES OF EMERGENCY
6. SPECIALISED FUNCTIONS OF HAMNET

CHAPTER 4 – APPOINTMENTS, TRAINING AND ADVANCED QUALIFICATIONS

1. ENROLMENT AND APPOINTMENT
2. COMPETENCY AND TRAINING
3. ADVANCED QUALIFICATION RECOGNITION

CHAPTER 5 – PROPERTY, EQUIPMENT AND FINANCE

1. PROPERTY AND EQUIPMENT
2. FINANCE

CHAPTER 6 – INDEMNITY AND INSURANCE OF MEMBERS

1. INDEMNITY
2. INSURANCE

CHAPTER 7 – GRIEVANCE PROCEDURE

CHAPTER 8 – GENERAL

1. BADGES AND INSIGNIA
2. THE HAMNET BADGE
3. DIRECTIVES
4. ALTERATION, VARIATION AND AMENDMENT
5. DISILLUSIONMENT

## SECTION 2

### CHAPTER 1 – INTRODUCTION TO EMERGENCY COMMUNICATIONS

- A.
  - 1. OBJECTIVES
  - 2. REQUIREMENTS
  - 3. DISASTER COMMUNICATIONS
  - 4. WHAT IS A COMMUNICATION EMERGENCY?
  - 5. WHAT MAKES A GOOD "EMCOMM" VOLUNTEER?
  - 6. WHAT YOU ARE NOT
  - 7. DAY TO DAY VERSUS EMERGENCY COMMUNICATIONS
  - 8. WHAT IS YOUR JOB
  
- B. ANATOMY OF A COMMUNICATION EMERGENCY
  - 1. GENERAL OPERATION PROCEDURES

### CHAPTER 2 – AMATEURS AS PROFESSIONALS

- 1. WHAT HAS MY ATTITUDE GOT TO DO WITH IT?
- 2. TALKING TO THE PRESS
- 3. NETWORK THEORY

### CHAPTER 3 – CHARACTERISTICS OF MESSAGES

- 1. SINGLE VERSUS MULTIPLE MESSAGES
- 2. HIGH PRECISION VERSUS LOW PRECISION
- 3. COMPLEXITY
- 4. TIMELINESS

### CHAPTER – 4 CHARACTERISTICS OF COMMUNICATION CHANNELS

- 1. TELEPHONES
- 2. CELLULAR PHONES
- 3. FAX
- 4. TWO WAY VOICE RADIO
- 5. PACKET RADIO
- 6. OTHER MODES
- 7. PLANNING AND PREPARATION THE KEY TO SUCCESS
- 8. GOING BEYOND AMATEUR RADIO

### CHAPTER 5 – BASIC COMMUNICATION SKILLS

- 1. WHY ARE EMERGENCY COMMUNICATION TECHNIQUES DIFFERENT?
- 2. LISTENING
- 3. MICROPHONE TECHNIQUES
- 4. BREVITY AND CLARITY
- 5. PLAIN LANGUAGE
- 6. PHONETICS
- 7. STATION IDENTIFICATION
- 8. COMPLETING A CALL
- 9. BAD HABITS TO AVOID

### CHAPTER 6 – INTRODUCTION TO EMERGENCY NETS

#### DEFINITIONS

- 1. WHAT IS AN EMERGENCY NET
- 2. TYPES OF NETS
  - A. FORMAL NETS
  - B. INFORMAL NETS
- 3. TYPES OF EMERGENCY NETS
- 4. CHECKING INTO AN EMERGENCY NET
- 5. BREAKING INTO A NET
- 6. LEAVING A NET
- 7. TWO SPECIAL SITUATIONS TO BE AWARE OF
- 8. NON-VOICE NETS

CHAPTER 7 – BASIC MESSAGE SKILLS

1. FORMAL VERSUS INFORMAL MESSAGES
2. MESSAGE HANDLING RULES
3. COPYING HINTS
4. LOGGING AND RECORD KEEPING
5. WHAT TO LOG
6. LOG FORMAT

CHAPTER 8 – INITIAL OPERATION AND SHUT DOWNS

1. RESPONDING AFTER ACTIVATION
2. WHO IS IN CHARGE
3. ARRIVING AT THE SITE
4. INITIAL SETUP
5. ENDING OPERATIONS
6. DEPARTURE
7. THE DEBRIEFING

CHAPTER 9 – OPERATION AND LOGISTICS

1. CHOOSING NET FREQUENCIES
2. KNOW YOUR RESOURCES
3. NETWORK COVERAGE CONCERNS
4. RADIO ROOM SECURITY
5. RECORD KEEPING
6. DEALING WITH STRESS
7. PERSON SAFETY AND HEALTH
8. SAFETY IN AN UNSAFE SITUATION

CHAPTER 10 – EQUIPMENT CHOICES FOR EMERGENCY COMMUNICATIONS

1. TRANSCEIVERS
2. OPERATING ACCESSORIES
3. BATTERIES
4. INVERTERS
5. GENERATORS
6. POWER CONNECTORS AND CABLES
7. TESTING THE COMPLETE STATION
8. HAMNET FIELD STATION CHECK LIST

CHAPTER 11 - MARINE COMMUNICATIONS

CHAPTER 12 – THE ROAD TRAFFIC ACT AND SCENE MANAGEMENT

- ROAD TRAFFIC ACT
- SOME POINTS ON ACCIDENT SCENE SAFETY
- CALLING FOR ASSISTANCE

CHAPTER 13 – LEGAL ASPECTS

- ASPECTS OF LEGAL LIABILITIES
- MEDICO LEGAL ASPECTS OF THE FIRST AIDER
- CRIMINAL AND CIVIL CLAIMS LIABILITY
- NEGLIGENCE
- CONSENT
- ABANDONMENT
- CRIMEN INJURIA

CHAPTER 14 – HAZARD MATERIAL AWARENESS

1. INFORMATION
2. HAZMAT SYMBOLS

CHAPTER 15 - EMERGENCY TELEPHONE NUMBERS

# SECTION 1

## DEFINITIONS

In this handbook, unless the context otherwise indicates;

"SARL" means the South African Radio League as duly constituted.

"President" means the President of the South African Radio League.

"Council" means the Council of the South African Radio League whose members are appointed in terms of the constitution of the South African Radio League

"HAMNET" means the division of the South African Radio League charged with the organisation, implementation and execution of an emergency radio communications network.

"National Director" means the person appointed by the Council of the South African Radio League to organise, control, regulate and implement the operations of HAMNET.

"National Deputy Director" means the person appointed by the Council of the South African Radio League to deputize for the National in his absence.

"Provincial Director" means a person appointed by the National Director to organise, control, regulate and implement the operations of HAMNET in any designated Province.

"Provincial Deputy Director" means a person appointed by the National Director to deputize for a Provincial Director in his absence, within any designated Province.

"Provincial Assistant Director" means a person appointed by the National Director to assist a Provincial Director in any designated Province.

"Province" means such area as defined as a Province in terms of the Constitution of the Republic of South Africa (Act 200 of 1993) or as amended from time to time.

"Member" means a member of HAMNET, who shall also be a member of the South African Radio League.

"National Council" means a Council consisting of the National Director, Provincial Directors, and Provincial Deputy Directors with the purpose of ensuring effective co-ordination of HAMNET within the Republic of South Africa.

"Provincial Council" means a council consisting of the Provincial Director, Provincial Deputy(s) and Provincial Assistant Director(s) with the purpose of ensuring the effective co-ordination and operation of HAMNET in any Province.

"SATEPSA" means the South African Telecommunications Electrical and Power Supply Authority as constituted by the Government of the Republic of South Africa.

"Disaster Management" (previously Civil Protection) means Disaster Management as defined in terms of the Civil Protection Act

The objective of this manual is to provide a baseline level of knowledge and skill in Amateur Radio Communications for anyone wishing to assist their local emergency communications organization.

## **CHAPTER 1 – ESTABLISHMENT, OBJECTIVES AND AIMS**

### 1. ESTABLISHMENT OF HAMNET

There is hereby established a division of the SARL which shall be known as HAMNET and which shall be structured at National and Provincial levels and shall function under the jurisdiction of the National Director who shall be accountable to the Council of the SARL.

### 2. OBJECTIVES AND AIMS

The objectives of HAMNET shall be;

- a. to provide efficient and accurate radio communications in the event of a natural disaster, emergency situation or when the lives, safety, welfare or property of the community are endangered;
- b. to train its members in emergency radio procedures;
- c. to form an effective radio network in any emergency condition, from fixed and/or mobile stations;
- d. to be at the disposal of the Government of the Republic of South Africa, SATEPSA, any Provincial Government, Disaster Management or any other body or organisation vested with similar aims and objectives in times of any emergency or at such other times when lives, safety, welfare or property of the community may be endangered;
- e. to liaise with any organisation or body, whether constituted by Statute of the Republic of South Africa or not, in order to give effect to these aims and objectives.

## **CHAPTER 2 – ORGANISATION, COMMAND AND CONTROL**

### 1. ORGANISATION

HAMNET shall be structured into three levels, namely;

- a. national;
- b. provincial, and
- c. sub-provincial.

HAMNET shall be organised;

- i. to give effect to the constitution of the SARL;
- ii. to promote service to the community; and
- iii. to ensure that the level at which decisions can be taken most effectively is the level empowered to do so; and
- iv. to ensure that command and communication are as efficient as possible.

## 2. DIRECTORS

- a. There shall be a National Director of HAMNET who shall be appointed by the Council of the SARL.
- b. There shall be a National Deputy Director of HAMNET who shall be appointed by the Council of the SARL or by the National Director of HAMNET.
- c. There shall be Provincial Directors for each province within the Republic who shall be appointed by the National Director on the recommendations of the members of HAMNET in such province.
- d. There shall be a Provincial Deputy Director for each province within the Republic who shall be appointed by the Provincial Director on the recommendations of the members of HAMNET of such province; provided that the National Director shall approve such appointment.
- e. There shall be Provincial Assistant Directors for each province within the Republic who shall be appointed by the Provincial Director and Provincial Deputy Director(s) of such province; provided that the National Director shall approve such appointment.

## 3. TERMINATION OF SERVICE

- a. Should any reason arise which may require the termination of any member's HAMNET membership, such instance will be dealt with as provided for in the grievance procedures as set out in these rules. Any member who ceases to be a member of the SARL, shall automatically forfeit his or her HAMNET membership.

## 4. NATIONAL COUNCIL.

The National Director of HAMNET shall hold a meeting of the National Council not less than once in every year.

The National Council will perform the following functions;

- a. to ensure that all Directors of HAMNET are advised of matters concerning the national policy of HAMNET;
- b. to ensure the effective co-ordination of HAMNET activities on a national basis;
- c. to ensure the effective co-operation of all Directors on an inter-provincial basis;
- d. to deal with any matter that affects HAMNET on a national basis; and
- e. to deal with any matter concerning HAMNET, referred to or brought to the attention of the National Director by the Council of the SARL or any other body or person which may concern the aims, objectives of HAMNET on a National basis.
- f. Meetings of the National Council may be held by means of telephone conference facilities, radio or at which the members are present.
- g. Minutes of the meetings of the National Council will be kept in writing and a copy of such meetings shall be sent to every member of such council and to the secretary of the SARL.



## 5. PROVINCIAL COUNCIL

The Provincial Directors shall hold meetings of the Provincial Council in each province not less than 4 (four) times per year.

The Provincial Council will perform the following functions;

- a. to ensure the effective co-ordination of HAMNET activities on a provincial basis;
- b. to ensure the effective co-operation of all Directors on a provincial basis;
- c. to deal with any matters concerning HAMNET on a provincial basis; and
- d. to deal with any matter referred to such Council by the National Council or the National Director.
- e. Meetings of the Provincial Council may be held by means of telephone conference facilities, radio or where the members are present.
- f. Minutes of the meetings of the Provincial Council will be kept in writing and a copy of such minutes will be sent to every member of such council and to the National Director.

## **CHAPTER 3 – POWERS, FUNCTIONS AND RESPONSIBILITIES**

### 1. NATIONAL DIRECTOR

The National Director shall;

- a. Exercise executive command of HAMNET;
- b. Act as chairman of the National Council;
- c. Appoint and ratify Directors of HAMNET as provided for in this notice;
- d. Control the members of HAMNET;
- e. Issue identity cards to every member;
- f. Control the effective operation of HAMNET;
- g. Keep a register (database) of all HAMNET members; and
- h. Perform such other functions and duties as required in terms of these rules and any other function he or she may be called upon to perform by the Council of the SARL from time to time.

### 2. PROVINCIAL DIRECTOR

The Provincial Director, within his or her province of jurisdiction, shall;

- a. exercise control of HAMNET within such province;
- b. appoint Provincial Deputy and Assistant Directors as provided for in this notice;
- c. act as chairman of the Provincial Council;

- d. control membership within the province;
- e. arrange training and training exercises for members;
- f. maintain a register of members;
- g. maintain an active liaison with Disaster Management, Provincial Government, Local Authorities and other bodies or persons;
- h. recruit HAMNET members;
- i. formulate a contingency plan in the event of an emergency;
- j. perform such additional duties as the National Director may designate to him or her from time to time.

### 3. PROVINCIAL DEPUTY DIRECTORS

- A. Provincial Deputy Director shall;
  - a. assist the Provincial Director in the performance of his or her duties;
  - b. act as the Provincial Director in his or her absence from the province of jurisdiction of such Provincial Deputy Director and exercise all the powers of such Provincial Director during his or her absence.
  - c. Perform such tasks and additional duties as designated to him or her by the Provincial Director from time to time.

### 4. PROVINCIAL ASSISTANT DIRECTOR

- A. Provincial Assistant Director shall;
  - a. be responsible for the recruiting, training and liaison between members of HAMNET within an area within the province of his or her appointment as specified by the Provincial Director
  - b. perform such other tasks and duties as designated to him or her by the Provincial Director from time to time.

### 5. EMPLOYMENT OF HAMNET IN TIMES OF EMERGENCY

- a. The President or National Director or any Provincial Director in consultation with the National Director, may activate and instruct members of HAMNET to perform any duty in service of the preservation of life, safety of the community or property.
- b. HAMNET members whilst so employed shall be subject to the laws of the Republic and the regulations as defined.
- c. Any member of HAMNET who refuses to comply with a request to perform duty by the President, National Director or any Provincial Director or who fails to comply with the requirements of these rules without just cause, shall be suspended from membership pending an enquiry and be liable to censure or withdrawal of membership of HAMNET as provided.

## 6. SPECIALISED FUNCTIONS OF HAMNET

- a. The National Director may direct any member to establish a specialized unit or division of HAMNET for the purpose of furthering the aims and objectives of HAMNET.
- b. The powers, functions and area of jurisdiction of such person will be defined in writing by the National Director.

## **CHAPTER 4 – APPOINTMENTS, TRAINING AND ADVANCED QUALIFICATIONS**

### 1. ENROLMENT AND APPOINTMENT

- a. Any person wishing to enroll as a member of HAMNET shall complete an application form as prescribed by the National Director.
- b. Membership of HAMNET shall be open to such persons who are members, in good standing of the SARL.
- c. Subject to the recommendations of the Provincial Director in whose area the applicant resides, the National Director may accept or reject such application without stating reasons for such rejection.
- d. Every person granted membership of HAMNET will be issued with an identity appointment card which shall bear THE I.D. number of the applicant/member as appearing on the Bar Code I.D. book issued by the Government of South Africa and be styled as prescribed by the National Director.

### 2. COMPETENCY AND TRAINING

Every member of HAMNET shall demonstrate his or her competency in the following aspects;

- a. understand and demonstrate the principles of emergency radio operating procedures;
- b. know the requirements for operating a field station and demonstrate his or her capability by operating a field station for a period of not less than 1 (one) hour at a location to be chosen by the examiner;
- c. understand and demonstrate the requirements of reporting an incident using radio communications and procedures;
- d. to be able to read a street map and proceed to a given point utilizing such map;
- e. locate and plot his or her position on a map of suitable scale and be able to plot and proceed to a location on such map utilizing map references stated in longitude and latitude; and
- f. participate in two exercises approved by a Provincial Director.
- g. Every member shall demonstrate his competency as prescribed to the satisfaction of the Provincial Director of his or her province or to such person as the Provincial Director as appointed to fulfill such function.
- h. The above training requirements may be varied and or amended from time to time

### 3. ADVANCED QUALIFICATIONS RECOGNITION.

The recognition of advanced qualifications are voluntary and do not form any part of the membership requirements for HAMNET nor are they compulsory.

Any member of HAMNET who satisfies the National Director that he or she holds the following qualifications shall be recognised as prescribed.

- a. a current basic first aid or equivalent certificate, shall have a red disc affixed to his or her identity card or suitable mention shall be made to indicate the qualification;
- b. is an accredited member of a Four Wheel Drive Rescue Unit, shall have a blue disc affixed to his or her identity card or suitable mention shall be made to indicate the qualification;
- c. is an accredited member of a Disaster Management Unit, shall have a yellow disc affixed to his or her identity card or suitable mention shall be made to indicate the membership;
- d. has qualified for the advanced HAMNET training module, shall have a green disc affixed to his or her identity card or suitable mention will be made on the identity card of this achievement;
- e. The advanced HAMNET training module qualification shall consist of a member participating in an exercise being no less than 3 (three) hours in duration and successfully demonstrating his capabilities in each aspect of the requirements for training as set out in Rule 6. This exercise shall be held in both rural and urban terrain.
- f. The detailed requirements in respect of the above training and advanced qualifications may be varied from time to time at the discretion of the National Director.

## **CHAPTER 5 – PROPERTY, EQUIPMENT AND FINANCE**

### 1. PROPERTY AND EQUIPMENT

- a. All property or equipment, whether movable or immovable, acquired, purchased, donated or received by any member for the use of on behalf of HAMNET, shall be recorded in an assets register which shall be maintained by the Provincial Director in the province of the Republic where such property or equipment is to be used or utilised.
- b. All property or equipment requiring to be registered in terms of any law of the Republic, shall be registered in the name of the South African Radio League – HAMNET, at the address of the headquarters of the League.
- c. Any documents required to be signed in respect of property or equipment shall bear the signature of the Provincial Director concerned, the National Director and President, any two of which persons are to be authorised to sign for the acquisition or disposal of such equipment or property.
- d. The asset register will be in such form as the Council of the SARL may prescribe from time to time and be annually updated. A copy of such asset register will be submitted to the National Director and Council by the Provincial Director by no later than 31<sup>st</sup> day of December of each calendar year.

## 2. FINANCE

- a. Every Provincial Council shall be empowered to open, operate or close an account at a registered bank or building society within the Republic.
- b. The authorising signatories on such account shall be the Directors within the province where such account is to be operated, the National Director and the Treasurer of the SARL. Any two of the above persons shall be authorised to operate the account.
- c. All the accounts will be in the name of the South African Radio League – HAMNET and be followed by the name of the province in which such account will be operated.
- d. The Provincial Director or a member designated by him or her will maintain detailed records of all income and expenditure in respect of such accounts and submit an annual income and expenditure record, together with supporting documentation, to the Treasurer of the League on or before 31<sup>st</sup> December of every year in a form to be prescribed by the Treasurer of the SARL from time to time.
- e. All money received by a Provincial Council on behalf of HAMNET shall be recorded in the financial records of such Province.
- f. Any money received by the National Director on behalf of HAMNET shall be handed to the Treasurer of the SARL who shall deposit such money into the account of the SARL and maintain a separate record of such money within his or her books.
- g. All expenditure or transfer of money to a Provincial HAMNET account requested by the National Director on behalf of HAMNET shall be authorised by the Council of the SARL and be recorded by the Treasurer in the books of the SARL.
- h. The Treasurer of the SARL shall reconcile all income and expenditure on behalf of HAMNET in the annual financial report of the SARL which shall be tabled at the AGM of the SARL.
- i. No person who is a member of HAMNET may enter into any suspensive sale agreement, lease agreement or any other form of financial transaction or agreement which may create any liability on behalf of the South African League, without written consent of the Council of the SARL, which consent shall not be unreasonably withheld
- j. No member of HAMNET or group of HAMNET members, when participating in exercises, may claim expenses from the people or Organization they are helping with communication purely for exercise purposes. Any donation made to HAMNET for such services rendered, shall be accounted for in books of the Provincial Director or Council in which province or area the donation was received.

## **CHAPTER 6 – INDEMNITY AND INSURANCE OF MEMBERS**

### 1. INDEMNITY

- a. Every member of HAMNET or any other radio amateur or person specifically indemnifies the SARL and HAMNET from any legal liability howsoever caused or acquired in respect of bodily injury or for any loss or damage to property whilst such person is participating in any activity of whatsoever nature on behalf of HAMNET or the SARL.

## 2. INSURANCE

- a. The SARL will arrange for a policy of insurance to which members may voluntarily subscribe and which will provide indemnity to any member of HAMNET or a member of the SARL whilst participating in HAMNET activities, in respect of;
- b. indemnity for loss or damage to immovable property;
- c. indemnity for loss or damage to movable property;
- d. indemnity for death or bodily injury caused by accidental means, including compensation for temporary and or permanent disability;
- e. Subject to each and every member who voluntarily wishes to participate in such insurance policy being solely responsible for the payment of all premiums and costs of such insurance and the SARL, HAMNET and any other person or organisation will not be liable for any loss or damages falling outside the scope of this policy or if a member fails to pay any premium for such policy as specifically provided for in the indemnity clause.

## **CHAPTER 7 – GRIEVANCE PROCEDURE**

1. Should a member or any other radio amateur be dissatisfied with or hold the perception that any unfair treatment against him has arisen or that HAMNET or a member of HAMNET is in breach of any procedure, regulation or requirement in the pursuance of any HAMNET activity, or should any member of HAMNET be in breach of these rules or a complaint of misconduct be lodged against a member, then such grievance shall be dealt with in terms of clause 16.1.4 of the Constitution of the SARL as provided in the instance and within the context of such provisions.

## **CHAPTER 8 – GENERAL**

### 1. BADGES AND INSIGNIA

- a. Members of HAMNET may display the badge of the SARL with the word "HAMNET" in the lower scroll of such badge on the windscreen of any vehicle used by such member. The badge shall be in black or dark blue and have a yellow background.
- b. There shall be a HAMNET badge in the form as depicted hereunder and which badge may be worn or displayed by any member of HAMNET.
- c. Members of HAMNET may, in addition to the above badges, wear any badge, award or decoration awarded to him or her by the SARL or any other body or organization recognised in the Republic of South Africa and legally authorised to make such award.

### 2. THE HAMNET BADGE:

(insert the colour badge that I had made)

3. DIRECTIVES

- a. The National Director may from time to time issue directives to any Director or member in order to amplify or expand on any aspect of these rules save that such directives shall not alter the context of these rules.

4. ALTERATION, VARIATION AND AMENDMENT

- a. The National Director may, in consultation with the National Council alter, amend or vary the requirements and directives in this notice from time to time, subject to such alterations, amendments or variations being first ratified by the Council of the SARL or in exceptional and urgent circumstances by the President acting on behalf of the Council of the SARL.

5. DISILLUSIONMENT

- a. In the event of HAMNET being dissolved or ceasing to operate, all property, whether movable or immovable and all funds held in any account in the name of HAMNET shall revert to the South African Radio League.

## SECTION 2

### CHAPTER 1 - INTRODUCTION TO EMERGENCY COMMUNICATIONS.

#### 1. OBJECTIVES

This manual will introduce you to the general concepts of emergency communication and how you as volunteers, can best help.

#### 2. REQUIREMENTS

- a. You should have a sincere interest in providing your skills as an emergency radio operator. Our professionalism and the effectiveness of our public service efforts will be greatly improved if we all share a common base of knowledge, skills and procedures
- b. We hope, with the help of this manual, you will learn new skills and new ways of thinking about existing skills.
- c. You may have ideas that could add to the information presented in this manual/section. Just make a note of them and forward them to Keith ZS5WFD, as our methods and techniques must continually change to meet the needs of the communities we serve.

#### 3. DISASTER COMMUNICATIONS.

- a. Most emergency service radio systems are designed to perform in Emergencies at any time of the day or night. Such systems generally fulfill the demands placed on them by "normal" emergencies and will operate within the limits of that system's design.
- b. The inadequacies of a system only emerge when the system is over-extended or is expected to function beyond its design, as happens in times of real disasters.
- c. Local Authorities often employ systems that can only cover their own local areas and cannot extend beyond limited boundaries.
- d. To clarify this distinction the term "DISASTER COMMUNICATION" is used instead of "EMERGENCY COMMUNICATION"
- e. Disasters seldom occur (in KZN) and are thus often forgotten or form a small part of the usual annual exercises and planning strategy. Any system that cannot cope with a disaster situation puts at risk lives, property and public welfare.
- f. It is here that HAMNET comes into it's own. We as HAMNET operators are equipped to deal with local emergencies via VHF and to operate over long distances nationally and internationally via HF over extended periods on a self supporting basis in the field or from a fixed station.
- g. Disaster communications can be chaotic, organised or be somewhere in between. Not only do disaster communications vary from disaster to disaster, they can vary from minute to minute in many cases.



- h. Preparedness is the key. An organised, well trained HAMNET unit with a flexible, understanding and rational emergency plan will provide communications on a professional basis whether it be an emergency or disaster.
- i. Nobody can predict what to expect when a disaster strikes.
- j. The priorities to bear in mind are :-
  - i. Be prepared to operate from any location at a moments notice.
  - ii. Train yourself in emergency communication techniques.
  - iii. Draw up a rapid response call-out system for the operators in your area.
  - iv. Plan for the worst situation when only you and your HAMNET group must operate without any other support.
  - v. Be prepared to move your location at a moments notice without having to cease communications for longer than necessary.
  - vi Stick to your task as a communicator. Leave such things as traffic control, first aid etc to the experts.
  - vii Hold regular exercises to maintain your preparedness.
  - viii Plan for a back up as some operators in your HAMNET unit may not be available in times of crisis.
  - ix. Prepare an emergency travel box for your radio and personal equipment, be ready to move at a moments notice.
  - x. Develop a good relationship with the Disaster Management and emergency personnel in your area.

The above points are only a guide. As you plan your own strategy, you will develop further ideas and can then share them with other HAMNET members in your province/area.

#### 4. WHAT IS A COMMUNICATION EMERGENCY.

Communication exist when a critical communication system failure puts the public at risk. Examples are easily found. It could be a storm that knocks down telephone lines or fires that occur in a telephone exchange. Hospital or emergency services systems can fail. Some emergency operations occur in areas without any existing communications systems, such as forests.

#### 5. WHAT MAKES A GOOD "EMCOMM" VOLUNTEER?

- a. The common link that all volunteers share is the desire to help others without personal gain of any kind and the ability to work as members of a team. They must also be able to think and act quickly, sometimes under stress and pressure of an emergency.
- b. Amateur radio operators have been a communication source in emergency situations ever since there has been radio. To some services amateurs are their immediately available communication experts.

- c. We have the equipment, the skills and the frequencies necessary to create expedient emergency communication networks under poor conditions.
  - d. However, just having a radio, frequencies and the basic radio skills is not enough. Certain emergency communication skills are very different from those used in our daily ham radio life.
  - e. Without specific emergency communication skills, you can easily become part of the problem rather than part of the solution.
6. WHAT YOU ARE NOT
- a. You are not a "first responder". Except in rare cases, you will seldom be first on the scene. You don't need flashing lights and sirens etc. in most cases, beyond reporting the situation to the proper authorities, you have no authority at the onset of an emergency.
  - b. The only decisions you can make are whether to participate or not, and those affecting your own health and safety.
7. "DAY-TO-DAY" VERSUS "EMERGENCY COMMUNICATIONS".

In your daily ham radio life there is no pressure to get any particular message through. You do things at your leisure and no ones' life depends on you. But in an emergency all that changes.

Here are some differences

- Unlike regular activities, emergency operations happen in realtime and cannot be delayed.
- Unlike events that are planned or scheduled, emergency communicators are often asked to organise and co-ordinate field operations with little or no warning.
- Unlike home installations, emergency stations must be portable and be able to be set up and be operational anywhere in a very short time.
- Unlike contests which involve contacting any stations for points, emergency operators need to contact specific stations quickly and pass important messages. Teamwork is important.
- Unlike a field day which lasts one day, an emergency could last several days.

8. WHAT IS YOUR JOB

Your number one job is communication. Our job is to get messages through. Do not think about how to use ham radio and send the message – just think about the best and fastest way to send it.

9. ANATOMY OF A COMMUNICATION EMERGENCY

- a. In the early phases of many disasters/problems, there is no immediate need for emergency communication services.
- b. Once a potential or actual need for more communication resources is identified, then the authorities put out the call for HAMNET.
- c. Depending on the situation, operators and equipment might be needed at the Joint Operations Centre (JOC) or to set up in field locations, or both.
- d. Once operations begin, all kinds of things can happen. The volume of messages can grow and confusion will be common.

- e. Nets will be set up. Re-arranged and closed as needs change. Volunteers will need to remain flexible in order to meet the changing need of the JOC.
- f. Not long after the operation has ended, HAMNET should review the effectiveness of its response, with all the members that assisted.
- g. Critiques, done properly, can greatly improve HAMNET'S, and your own, effectiveness.

#### 10. GENERAL OPERATING PROCEDURES

- a. Once you have established your station, check your access to a repeater (if your group is using one) to check that you have comms and you are not in a "dead" area. You may hear the repeater but not be able to access it from your location
- b. It must be remembered at all times that transmitting messages under emergency conditions, you must maintain the highest standards of efficiency in order to pass the messages clearly with complete accuracy and in a calm manner.
- c. When transmitting, make sure you are on the correct frequency and the frequency is clear of other traffic You should call "your callsign" followed by "with traffic", or if you have an emergency "your callsign" with "priority traffic". Always talk across the face of the microphone for clarity.
- d. Do not use the word "BREAK" unless you have a true emergency.
- e. Speak slowly, clearly, distinctly and do not let your voice tail off.
- f. Only start talking after you have pressed the PTT for at least a second to avoid clipping words.
- g. Know exactly what you're going to say before you press the PTT. Remember you must deliver the message and have all the facts right.
- h. Avoid doubling with another station. Listen before transmitting.
- i. The control station will always leave a pause at the beginning and end of a transmission to see if another station wishes to call in.
- j. Do not eat when transmitting as it only makes transmission indistinct.
- k. When using a Hand Held do NOT move around as you could lose the link with the repeater.
- l. When working via a repeater make sure the control station can hear you.
- m. Remember to talk slowly and clearly as a lot of operators, under stress, have a habit of talking fast.
- n. Avoid angry or obscene comments on the air as there are many listeners out there.
- o. If you are relaying a message – relay the message word for word as you received it.
- p. Sound alert. If you are tired try and get a relief as nothing destroys confidence as much as a bored or tired sounding radio operator.

- q. Always use "affirmative" or "affirm" for yes and "negative" for no. "Roger" for message received and understood.
- r. Do not use the "Q" codes.
- s. Always give your callsign with every transmission as per radio Regulations.
- t. Do only what the control station asks you to do. Do not act as a relay station unless requested by the control station.
- u. Always use the International phonetic alphabet when spelling words. Do not invent your own.
- v. Always acknowledge call and instructions.
- w. Transmit only facts. Be careful what you say on the air. Accuracy first – speed second.
- x. Always know where you are as the control station may have to know exactly where you are if a search team or other mobile units need to locate you.
- y. If reporting an accident you must give the road name, direction of travel, number of vehicles involved, number of injuries if possible and visible injuries, any spillage etc.
- z. You must stay at the scene in case further information is required or until the emergency services arrive.

## **CHAPTER 2 – AMATEURS AS PROFESSIONALS**

### **1. WHAT HAS MY ATTITUDE GOT TO DO WITH IT?**

- a. In a word everything. It is even more important than your radio skills. The attitude of some amateur radio operators leaves much to be desired.
- b. Although we are called Amateurs, it does not imply that our efforts are amateurish and anything less than Professional. "Professionalism" means getting the job done efficiently – with the minimum of fuss.
- c. No matter who we serve, we are there to solve their communication problems. Do whatever you can to accomplish that goal, and avoid becoming part of the problem.
- d. Your job is to meet the communication needs of the agency. It is not to show off your fancy equipment, nor impress anyone with your knowledge of radio. A "know-it-all" or "I will show you how good I am" attitude is not what we want.
- e. We don't, as volunteers, have to take orders, however, when you volunteer your services as an emergency communicator, you agree to accept and comply with reasonable orders and requests from the "agency". If you do not feel comfortable doing this – do not volunteer.

## 2. TALKING TO THE PRESS

In any emergency situation the press will be hunting for any information they can get, and they may not care where they get it. One place they should NOT get it is from you. Politely refer all such inquiries to the agency spokesman, as it is their job to talk to the press

## 3. NETWORK THEORY

There are a multitude of forms in use by the various emergency services, traffic authorities, SANDF, and other and they all have the same purpose – that is to record the time, location, originator of the message and certain priority codes.

HAMNET has designed a basic message form to use during an emergency. When operating with another organisation, try to use their forms and procedures for convenience.

The following is a list of some of the more important codes used at present.

- a. URGENT – These messages include important dispatches having a specific time limit, official messages not included above.
- b. WELFARE – Refers to the enquiry to the health and welfare of an individual in the disaster area.
- c. ROUTINE – Messages that do not fall into the first three categories.
- d. Remember that when an emergency procedure is being practiced or when an exercise only is held. All messages and message forms must be prefixed "THIS IS AN EXERCISE" to avoid any adverse reaction from a person listening to the frequency.

# CHAPTER 3 - CHARACTERISTICS OF MESSAGES

## 1. SINGLE VERSUS MULTIPLE DESTINATIONS

There are major differences between broadcasting and one-to-one (exclusive) communication channels. Some messages are for one single addressee while others are to be received by multiple destinations at the same time.

## 2. HIGH PRECISION VERSUS LOW PRECISION

Precision is not the same as accuracy. All messages must be received accurately. But sending a lot of names and numbers requires precision at the "character" level, while a report that "the fire is out" does not. Both may be important and must be transmitted accurately. But one involves a need for precision.

## 3. COMPLEXITY

A doctor at a hospital may use a radio to instruct a field volunteer how to splint a fractured leg. A table at the Comrades Marathon may send a report that they are out of water. The level of complexity varies greatly between these two messages.

#### 4. TIMELINESS

Some messages are extremely time-critical, while others can tolerate delays between origination and delivery without adverse effect. Highly time-critical messages must get through without delay. Timeliness also relates to the establishment of a communications link. Some modes, such as telephones, require dialing and ringing to establish a connection. An operator of a base station radio may need to track down a key official at the site to deliver a message. What matters is the total elapsed time from the time the message is written to the time it is delivered to its final party.

## **CHAPTER 4 - CHARACTERISTICS OF COMMUNICATION CHANNELS**

Now that we have just been through the different message characteristics, let's look at the communication channels that might be used in an emergency.

### 1. TELEPHONES

- a. The pathway most familiar to non-hams is the telephone. This voiced based mode is surprisingly reliable, and can be used without the need for specialised volunteers.
- b. It can quickly become overloaded during a large scale disaster
- c. The telephone is good for passing low precision information.
- d. The telephone system is a one-to-one pathway, it cannot be used for broadcasting.
- e. The one-to-one relationship between sender and receiver makes it ideal for messages containing sensitive or confidential information, such as casualty lists.
- f. The nature of the telephone circuit makes it difficult to break-in to a conversation to deliver a high-priority message.
- g. The system contains wires and cables that can be damaged or destroyed during severe weather, causing the whole network to come to a halt, regardless of priority or criticality.

### 2. CELLULAR PHONES

- a. They are simple to operate and don't need a separate licensed communication volunteer. Like telephones they are ideally suited to one-to-one communications avoiding stations not involved in the emergency or message exchange.
- b. Like the telephone the system contains wires, cables and electronic equipment that can become overloaded or damaged and destroyed during severe weather or emergencies.
- c. There is no "go to simplex" with a cellular phone system.

### 3. FAX

- a. Fax machines overcome the limitations of voice communications when it comes to dealing with high precision, lengthy and complex information.
- b. Fax machines can transfer drawings, pictures, diagrams and maps – information that is impossible to transfer over voice channels.

- c. Another advantage of the fax machine is that there is a permanent record of the information sent.
- d. As with the telephone and cellular phone they rely on wires and cables and add one more piece of technology an opportunity to fail.

#### 4. TWO-WAY VOICE RADIO

Whether on the public service bands or ham frequencies voice radio is simple to operate. Most radios can operate on multiple frequencies, making it a simple matter to increase the number of available communication circuits as the need arises. Most important, radios are self contained and portable.

#### 5. PACKET RADIO

As mentioned previously, voice modes are ideal for low-precision messages. Digital data modes, on the other hand, facilitate high precision message transfer. Modes such as Packet Radio ensure near perfect accuracy in transmission and reception, and like the fax, Packet Radio has the ability to provide a permanent record of the messages for later reference. Packet radio can also distribute information to a large number of destinations simultaneously.

#### 6. OTHER MODES

SSTV, satellite communications, human couriers, Internet, email and other modes of communications all have their own characteristics.

#### 7. PLANNING AND PREPARATION – THE KEY TO SUCCESS.

- a. Once you have identified the ideal pathway for the most common messages the next step is to increase the chances that the needed modes will and are available during the emergency.
- b. Remember, if you plan for problems, they cease to be problems and become part of the plan. The final step is training. Questions you might ask are: how do you upload or download from a Packet BBS? Who can touch-type? You will be surprised at how a little advance planning and effort can go a long way to turn a volunteer group into a versatile, effective communication system

#### 8. GOING BEYOND AMATEUR RADIO

Most disaster centres will have their own communication systems and equipment, ranging from modest to complex. In our ever-broadening role as communicators, we may be asked to operate some of this equipment. If this occurs, you must be familiar with its operation. Many of these radio systems are quite different from ham radio, and special training will be required. In addition to different equipment, on-air procedures will also be quite different to ham radio. Training and drills may be necessary to make Hamnet operators proficient. When using another radio system, be careful not to lapse back into ham radio operating procedures.

## **CHAPTER 5 - BASIC COMMUNICATION SKILLS.**

This lesson introduces communication skills that are specific to emergency communication operations, and helps you understand the differences from normal ham radio operations

A HAMNET operator must do his part to get every message to its intended recipient, quickly, accurately and with the minimum of fuss. A number of factors can effect your

ability to do this, including your own operating skills, the communication method used, a variety of voice problems, the skills of the receiving party, the co-operation of others and adequate resources.

#### 1. WHY ARE EMERGENCY COMMUNICATION TECHNIQUES DIFFERENT?

Life and death communications are not part of our daily experience. Most of what we say on the radio each day does not have the potential to severely impact the lives and property of scores of people. In an emergency, any message can have huge and often unintended consequences. An unclear message, or one that is modified, delayed, misdelivered, or never delivered at all can have disastrous results.

#### 2. LISTENING

Listening is at least 50% of communication. Learn to "time out" distractions. Listening also means avoiding unnecessary transmissions. A wise person once said "a man has two ears and one mouth, therefore he should listen twice as much as he talks". It is advisable to take a pair of headphones in case you have to work in a noisy location.

#### 3. MICROPHONE TECHNIQUES

Even something as simple as using your microphone correctly can make a big difference in intelligibility. For best results, hold the microphone close to your cheek, just off the side of your mouth. Talk across, rather than into the microphone. This will reduce breath noises and popping sounds that can spoil your speech. Speak in a normal, clear and calm voice. Raising your voice or shouting can result in over-modulation and distortion for the receiving station operator. Speak at a normal pace. When using a repeater, be sure to leave about 1 second gap between the time you key the PTT and you talk. This technique will ensure that your complete message is transmitted, avoiding time-wasting repeats for lost words.

#### 4. BREVITY AND CLARITY

Each communication should consist of only the information necessary to get the message across clearly and accurately. Extraneous information can distract the recipient and lead to misinterpretation and confusion. Words like "don't" and "isn't" are easily confused. Make your transmissions sound crisp and professional. Do not engage in "chit-chat". Be sure to say exactly what you mean. Use specific words to ensure that your precise meaning is conveyed. Communicate one complete subject at a time. Mixing different subjects into one message can cause misunderstanding and confusion.

#### 5. PLAIN LANGUAGE

As hams we use a lot of jargon and specialized terminology in our daily conversations. Most of us understand each other when we do. In an emergency, however, the results can be much different. A misunderstood message could cost someone's life. Not everyone helping at the emergency will understand our "Q" codes or slang, and for these reasons plain language will be used. Avoid words and phrases that carry strong emotions.

#### 6. PHONETICS

The best way to be sure certain words in a message are understood and that is to spell them. Always use the International Phonetic alphabet when spelling words. Standard practice is to first say the word, then say I spell, and then spell the word phonetically.



The following is the correct phonetic alphabet

A - alfa (AL-fa)	N - november (no-VEM-ber)
B- bravo (BRAH-voh)	O - oscar (OSS-cah)
C- charlie ((CHAR-lee)	P - papa ( PAH -PAH)
D - delta (DELL-tah)	Q - ouebec (kay-BECK)
E - echo (ECK-oh)	R - romeo (ROW-me-oh)
F - foxtrot (FOKS-trot)	S - sierra - (SEE-air-rah)
G - golf (GOLF)	T - tango (TANG-go)
H - hotel (HOH-tell)	U - uniform (YOU-ni-form)
I - india (IN-dee-ah)	V - victor (VIK-tor)
J - juliet (JU-lee-ett)	W - whisky (WISS-key)
K - kilo (KEY-loh)	X - X-ray (ECKS-ray)
L - lima (LEE-mah)	Y - yankee (YAMG-key)
M - mike (MIKE)	Z - zulu (ZOO-loo)

Numbers are as follows;

One - Wun	Six - Sicks
Two - Tooo	Seven - SEV-vin
Three - THUH-ree	Eight - Ate
Four - FOH-wer	Nine - NINE-er
Five - `Fy-ive	Zero - ZEE-row

Numbers are always pronounced individually, i.e 60 is spoken as "Six Zero" and not "Sixty". The number "509" is spoken as "five Zero Nine" and not "five hundred and nine".

## 7. STATION IDENTIFICATION

In addition to the radio rules, proper station identification is essential to promoting the efficient operation of a net. The radio rules require you to identify yourself on each over. The best is to give it at the end of each transmission.

## 8. COMPLETING A CALL

After the message has been sent, you should complete the call by saying "your station identification" followed by your call sign. This notifies the control that you are finished with your message. The control might ask "(your station) do you have any further traffic?" if not reply "negative" with (your call sign) which will identify your station.

## 9. BAD HABITS TO AVOID

- a. Thinking aloud on the air "Ahh, let me see, Hmm, Well".
- b. On air criticism
- c. Rambling commentaries
- d. Shouting into your microphone
- e. Cute phonetics
- f. Speaking without planning your message
- g. Talking just to hear your own voice.

Clear concise communications save time and reduce misunderstandings. Avoid any non-essential transmissions. Plain language is more easily understood by a wider range of people than most Q-codes.

## **CHAPTER 6- INTRODUCTION TO EMERGENCY NETS**

In this chapter, we provide an overview of operations in a radio network. It also contains information that is appropriate for Disaster communications and contingency plans and planning.

### **1. DEFINITIONS**

**Net:** a group of stations on a frequency, with a common purpose. It also allows an orderly flow of messages.

**Net Control:** the station in charge of the net.

**Formal Message:** written messages that are sent in a standardized form.

**Informal Message:** brief verbal or informal written messages intended for direct and immediate delivery.

**Traffic:** a term referring to messages sent over ham radio, usually formal written messages.

**Third Party Traffic:** messages transmitted on behalf of a person or organisation other than a Hamnet operator.

### **2. WHAT IS AN EMERGENCY NET?**

An "emergency net" is a group of stations who provide communications for an agency or the public in an emergency.

### **3. TYPES OF NETS**

#### **a. FORMAL NET**

In a formal net, a net control station organises and controls all activities. If a station in the net wishes to send a message they must first get permission from the net control station.

#### **b. INFORMAL NET**

In an informal net, a net control station is optional. Stations may call each other directly.

### **4. TYPES OF EMERGENCY NETS**

Emergency nets may have different purposes, and a given emergency may require one or more of each net.

a. Traffic Nets handle formal messages in a specific format

b. Tactical Nets are used for real-time co-ordination of activities related to the emergency.

- c. Logistic Nets may be needed to acquire resources and volunteers and handle assignments.
  - d. Informal Nets are usually open nets used to collect or share information on a developing situation.
5. CHECKING INTO AN EMERGENCY NET.
- a. If you are part of the organisation operating the net, do not just check in and offer to assist. Listen for a while. Be sure that you have something specific to offer before checking in, such as the ability to deliver a message close to your location, when there is no one else that can do it.
  - b. Do not be surprised if your offer is not accepted. It is nothing personal. Emergency nets are serious business.
  - c. Most net control stations prefer to deal with people with known training and capabilities, and with whom they have worked with before.
  - d. Rather become involved with HAMNET now, and when the next emergency occurs..
6. "BREAKING" INTO A NET
- a. If the net is busy, and you have emergency traffic to send, you may need to "break" into the net.
  - b. The most common procedure is to wait for a pause between transmissions and say "break ZS5...". The net control station will say "go ahead ZS5..." and you respond "ZS5... with emergency traffic".
7. LEAVING A NET
- Always check out of a net with the control station. If the control thinks you are still there, it could cause a problem if you are called and there is no reply.
8. TWO SPECIAL SITUATIONS TO BE AWARE OF
- a. If you are asked by someone in authority, such as a police officer, to move your station for one or other reason, then move it immediately, and without argument. Notify the control station of the situation at the first opportunity.
  - b. If you are asked by someone in authority to turn off you radio and stop transmitting, then do so immediately. Do not notify the control station until you can transmit again.
9. NON-VOICE NETS
- Nets may also use other modes of communicating besides voice (phone). There are CW nets, Packet Radio, AMTOR, PACTOR and PSK31 on HF or VHF. The latest now is "WINLINK 2000".

## CHAPTER 7 - BASIC MESSAGE HANDLING

This chapter will provide you with the basic knowledge for both formal and informal message handling. It is not intended to make you an "expert".

### 1. FORMAL vs. INFORMAL MESSAGES.

- a. Both formal (written in a specific format) and informal (verbal or written but not in a specific format) messages have their place in emergency communications. In general, informal messages are best used for non-critical and simple messages, or messages that require immediate action, those are delivered directly from author to recipient.
- b. Formal messages are more appropriate when two or more people will handle them before reaching the recipient, or where the contents are critical or contain important details. The most common formal messages form is the HAMNET message form.

(insert example).

- c. Formal messages are more likely to be delivered intact than verbal comments. Using a standard format for formal messages makes it easier and faster for both the sending and receiving to handle.

### 2. MESSAGE HANDLING RULES

- a. Do not speculate on anything relating to an emergency. There may be a lot of people listening to your transmission and any incorrect information could cause serious problems for the Disaster Management or others.
- b. You don't want to be the source of any problems. If you are asked for an estimate. Give just that. "I estimate 12 houses are gutted" would be acceptable.
- c. Pass messages exactly as written or spoken. In addition to speed, your job is to deliver each message as accurately as possible. You must not change any message as you read it.
- d. Always try and include the author's name and title in the message.

### 3. COPYING HINTS

When copying the text of a message by hand, the receiving station should write between 5 & 7 words per line, as this makes it easier to count the words after the message has been received. Once complete, the receiving station counts the words and asks the sending station what the word count was. This helps to check if there is a word missing or if all is OK.

### 4. LOGGING AND RECORD KEEPING.

- a. An accurate method of recording of all formal messages handled and various aspects of your stations' operation can be useful. Lost or misdirected messages can be tracked down later on, and a critique of the operation afterwards can be more accurate.
- b. All logs should include enough detail to be meaningful later on, especially the date and an accurate time. Logs should be completed and handed into the appropriate person for safekeeping.

## 5. WHAT TO LOG

Log all incoming and outgoing messages. Record the name of the sender, addressee, the station that sent you the message, the message number, and the time. Keep a written copy of each message in numerical order for future reference.

## 6. LOG FORMAT

- a. You might keep one log for incoming messages, and one log for outgoing messages and a third log for your station activities. Also include in the station log who was on duty and time of duty.
- b. Amateur Radio is not a secure mode, but you can take other steps to protect messages. You should never discuss the contents of messages with anyone.

# **CHAPTER 8 - SETUP, INITIAL OPERATION AND SHUTDOWNS.**

In this chapter you will understand the steps necessary to set up, begin, and end an operation in a temporary location or command centre.

## 1. RESPONDING AFTER THE ACTIVATION.

- a. After you have gathered your equipment and supplies, and are ready to respond, you may need to do several things, depending on local plans or the nature of the emergency.
- b. Check into the net and let the net controller know where you are en route and when you arrive at your point.
- c. In some cases you will be asked to report to a central point and then informed where to proceed to. In other serious emergency cases, you may be forced to make expedient arrangements as you go, so you may need to do what you can, where you can.

## 2. WHO IS IN CHARGE.

- a. It is normally the Provincial Director who is in charge of KZN.
- b. When you volunteer your services as a member of HAMNET KZN, you do so prepared to co-operate and work as a team member, as team work is the key to an efficient and effective emergency communication operation.
- c. Some times you may have to be the follower and other times you may have to be the leader.

## 3. ARRIVING AT THE SITE

When you arrive at your site, and if there are other people there, introduce yourself to the person in charge as the "emergency communicator" assigned to this location.

- a. Identify your self
- b. Inform them that you will be setting up your equipment and going on the air. Ask if they have a preference as to where the station should be.
- c. Ask if there are any hazards or problems in the immediate vicinity that you should be aware of.

- d. If there is no building you will have to work from your car. But make sure you are close to the control operations point.
- e. When installing antennas, equipment and cables take care not to damage anything. If something is damaged make a note of it in your log and report it to the person in charge as soon as possible.

#### 4. INITIAL SETUP.

Your first priority will be to set up your station and make contact with the net control station. Pack that equipment in your car so you can get to it first.

High power should be avoided if you have the ability to work the net with low power as to save on the battery, and to avoid interference problems to the telephones and other radio and electronic equipment.

Once you have set up and made contact with the net you can then do the following;

- a. Check for any other means of communication.
- b. Get a list of the immediate needs at the site.
- c. Make a list of stations within simplex range.
- d. Find out what their most critical needs are.
- e. Are telephones and faxes still operational.
- f. Inform the person in charge of the fact that messages send over Amateur Radio are not private or secure and to rather use the telephone or fax (if they are working) for this purpose.

#### 5. ENDING OPERATIONS

Emergency communications may end all at once or in stages. Several factors may effect which operation ends, and when.

- a. Damaged communication systems which are restored and return to normal service.
- b. Message traffic loads are reduced and can be handled by telephone etc.
- c. Locations such as temporary shelters are closed.
- d. Once you have been instructed to close down your station, inform the person in charge of your instruction and if necessary, why.
- e. File all logs and message forms before leaving and return any borrowed equipment. Carefully remove all antennas and equipment and pack them in boxes correctly, so as to save time if you deployed elsewhere.

#### 6. DEPARTURE

Always make sure you leave your position in the same condition as you found it. Clean up any mess and replace any furniture you moved or used. Thank all those who worked with you as a "thanks" always goes a long way in bettering your standing with that agency.

## 7. THE DEBRIEFING

After each operation, Hamnet and perhaps Disaster Management would want to hold a debriefing to review the effectiveness of the operation. There may be issues that occurred during the operation that you want to discuss at the meeting. Events may have occurred that involve messages you handled. Other items might include:

- a. What worked well
- b. What needs improvement
- c. Ideas to solve known problems and avoid them in the future.
- d. Conflicts and resolutions

During the debriefing, try and organize the session into (a) what worked well, and (b) what could be improved for the next operation. Avoid finger pointing and personal attacks.

## CHAPTER 9 - OPERATIONS AND LOGISTICS

### 1. CHOOSING NET FREQUENCIES

- a. Unlike commercial and public safety, i.e. Police and Fire, amateurs have a vast amount of radio spectrum to use in meeting the needs of an emergency. Most local and regional emergency communications take place on VHF (2-metres) or UHF (70-cms), or on HF in the 40 and 80 metre bands. The choice made is based on the locations to be covered, the availability of repeaters, distance, terrain and band conditions.
- b. VHF and UHF is preferred for most local operations because the equipment is common, portable, has clear voice quality and the coverage can be extended by the use of repeaters.
- c. VHF and UHF communication range is determined by terrain, antenna height and availability of repeater stations.
- d. HF can be used for national and regional areas where no repeaters are available.
- e. HAMNET has pre-determined frequencies allocated country wide in terms of the national Band Plan. VHF repeaters 145.700 MHz, VHF Simplex 145.225 MHz. HF 7.070 MHz in the 40-metre band and 3.695 MHz in the 80-metre band.

### 2. KNOW YOUR RESOURCES

- a. Become familiar with the coverage and features of the repeaters in your area, and program frequencies, offsets and CTCSS tones (if used) into your radio.
- b. Are there any "dead spots" in critical area? Can you access the repeater with high or low power? How is your coverage on Simplex?

### 3. NETWORK COVERAGE CONCERNS

- a. A lot of communications are done on simplex as the repeaters may be occupied by other traffic.

- b. Operations on simplex over a wide area can be a challenge as range is limited by terrain, output power, antenna gain and antenna height. Almost any structure or hill can block signals to a degree.
- c. There are several ways to improve simplex range.
  - i. use an antenna with greater gain.
  - ii. use a directional antenna
  - iii. move the antenna away from obstructions
  - iv. increase the height of the antenna,
  - v. increase output power. (this would have an adverse effect on battery life)
  - vi. In areas where there is poor simplex coverage and no repeater, it is helpful to put a mobile station on a hill or in a high building to act as a halfway station to relay any messages. The person is often referred to as a "human repeater".
  - vii. In addition to the main net frequency, each net should have another frequency available, and act as a backup in the event of interference on the main net.

#### 4. RADIO ROOM SECURITY

Only the operators who are on "duty" should be allowed into the radio room so as to protect your equipment and to prevent unnecessary distractions.

#### 5. RECORD KEEPING

Always keep a record of your operations. These records should include original copies of messages sent, station logs, memos and any official correspondence. Your logs and records could become legal documents and must be treated as such.

Your station log should have the following information;

- a. your arrival and departure times.
- b. time you checked into the net and time you closed down
- c. each message by number, sender, and addressee
- d. critical events, damage, power loss, injuries and other emergencies
- e. equipment problems and issues.
- f. Each message should have the time, date and consecutive number on the right hand to corner. This information can be used later to detail the course of events.

#### 6. DEALING WITH STRESS

Any unusual situation can create personal stress – disasters create incredible amounts of it. Most people are not used to working under extreme stress for long periods, and do not know how to handle it. Especially in the early hours of a disaster, the tendency is to regard every situation or need as an "emergency" requiring an immediate response. You might get a barrage of requests for action. The result is an overload of responsibility, which can lead to high levels of stress.



Here are some tips to help manage the situation;

- a. prioritize your actions – the most important come first.
- b. do not take comments or criticism personally.
- c. Take a few deep breaths and relax
- d. Watch out for your own needs.
- e. Take a moment to think before responding to a stress-causing challenge.
- f. Some within the emergency response community have “big egos” and still others with a need to be in full control at all times. Both types of members can and are problematic, but far worse under stress. Depending on the official position of the problem person, you might;
  - i. do your job as best you can, and deal with the problem after the emergency is over.
  - ii. refer the issue to a higher official.

#### 7. PERSONAL SAFETY AND HEALTH

Disaster volunteers sometimes become so involved with helping others that they forget to take care of themselves in a disaster environment. If you keep helping others, you need to keep yourself in good condition. If you do not you can become part of the problem. One way to keep yourself in good condition is to eat food that is substantial. High protein and high calorie snacks will help keep you going. Make sure you drink plenty of water.

#### 8. SAFETY IN AN UNSAFE SITUATION

Many disaster assignments are in unsafe places. Natural disasters can bring falling or flying debris, fire, explosions, building collapse, polluted water and a variety of other dangers. You should always be aware of your surroundings and the dangers they hold. Always have an escape plan ready in the event that conditions become dangerous. Avoid potentially dangerous areas. If you have to travel in dangerous conditions – take a “buddy” with you.

## **CHAPTER 10 - EQUIPMENT CHOICES FOR EMERGENCY COMMUNICATIONS**

There is no one “best” set of equipment that will ensure success for every assignment, but the principles herein will help you make intelligent choices.

#### 1. TRANSCEIVERS

The most universal choice for you is a FM 30-50 watt mobile transceiver. Radios in this class are rugged and reliable, and can operate at reasonably high duty cycles. Both the mobile and hand-held can be used to monitor more than one frequency.

HF – Use direct DC powering as it is more efficient in all cases. There is no single antenna for perfect HF operation. Your choice depends on the size and the terrain that you need to cover, and the conditions under which you must install and use it.

An ATU is necessary for most portable wire antennas, and a good idea for any HF antenna. The antenna's impedance will vary with its height above ground and proximity to nearby objects, which can sometimes be a problem with quick installations.

Include an earth rod, clamps and cable in your kit as most radios require a proper earth in order to operate efficiently, especially when using a long single wire antenna.

Feedline -- Feedline used for VHF and UHF should be low-loss coaxial cable. For short runs RG58 will suffice, but for longer runs, use RG213.

## 2. OPERATING ACCESSORIES

Headphones are useful anywhere and are a must in some locations. Operators in a control room with multiple radios in use, headphones are advised. A desk or boom microphone can be helpful in some cases.

## 3. BATTERIES

Battery power is critical for emergency operations, as portable operation for extended periods is common.

Batteries must be chosen to match the maximum load of the equipment, and the time that they can operate before needing to be recharged.

There are two types of batteries: the common lead-acid (wet) and the sealed lead-acid (SLA). Wet batteries can spill and cause damage if tipped, but the sealed lead-acid cannot spill. This type can be operated in any position – even upside down.

NOTE: If a sealed 12 volt lead-acid battery is allowed to drop below 10.5 volts, the battery will be damaged. Sealed lead-acid batteries should be charged slowly and carefully to avoid damage. All batteries produce hydrogen sulfide gas while recharging. Non sealed batteries vent it out but the sealed batteries re-absorb it back into the cells. If these batteries are charged too fast, the gas build-up is too much and too fast for re-absorption and they tend to swell and can be dangerous.

## 4. INVERTERS

While direct DC power is more efficient and should be used whenever possible, inverters can be used for equipment that cannot be directly powered by 12 volts DC. A lot of inverters generate RF noises as they are not properly filtered.

## 5. GENERATORS

Noise levels are a problem with the use of generators, unless they can be placed outside at a distance from your operating point. Placing the generator outside prevents the fumes from entering your position and causing carbon monoxide poisoning.

## 6. POWER CONNECTORS AND CABLES

Always make sure your power connectors are securely connected as you might need to connect to some else's power supply or battery.

All power cables should be properly fused on both the negative and positive leads. Installing a fuse on the negative line helps to protect equipment from ground-fault currents. When operating in an unfamiliar vehicle, rather use a "direct connection" from the battery as the cigarette lighter plug fuse may not be rated for the current-loading of your mobile rig. Always carry a power cable of about 4m in length of

adequate diameter with large battery clamps to connect to the battery. The power cable can be run from under the bonnet and through the window of the front door.

## 7. TESTING THE COMPLETE STATION.

After making your equipment selection, test the field station to ensure that it will work properly. This test will help reveal any short-comings and allow you to deal with them now – and not during a life and death situation.

All equipment chosen should be flexible and easy to use, rugged and capable of being battery powered. Antennas should be compact and easy to erect. Battery power and the charging of hand-held batteries is essential.

## 8. HAMNET FIELD STATION CHECK LIST

As a result of a practical exercise, the following is a list of the requirements needed to set up and operate an ideal field station.

- HAMNET identification card and a copy of your amateur radio licence.

- HF radio

- HF antenna/s

- Morse key

- VHF radio 10 watts +

- VHF back up radio

- VHF antenna 5/8 +

- VHF back up antennas

- UHF radio (optional)

- UHF antenna (optional)

- 27 MHz radio and antenna (optional)

- 29 MHz radio and antenna (optional)

- Head phones

- SWR meter

- ATU (antenna tuner)

- Earth spike and cable/s

- Frequency list

- Note pad/s

- Message pad/s

- Maps (street and country)

- Compass

- Log book

- Pens an pencils

- Clip board

- Table and chair

- Umbrella

- Tent (for operation in excess of 72 hours)

- Coax cables

- Coax barrel connectors/adapters

- Coax patch cables

- Portable mast

- Portable mast stays guy wires and pegs

- Battery (large capacity) + backup battery

- Portable generator (AC or DC type for lighting and charging)

- Lighting for night operation

- Torch

- Spare fuses

- Spare power cables

- Hamnet vehicle badges

- Hazard tape

Spade  
Axe  
Tow cables  
Jumper leads  
Medication  
Food (for at least two days)  
Cooking utensils  
Braai/gas stove  
Charcoal  
Matches/lighter/s  
Water for drinking  
Water for washing hands and eating utensil  
Toilet roll  
Toiletries (toothbrush, towel etc)  
First aid kit  
Rain suit  
Additional clothing  
Reflective jacket or bib  
Tool box containing the following.  
Screwdriver/s  
Pliers  
Shifting spanner  
Masking/insulation/amalgamated tape  
Soldering iron (12dc/220vac or gas type)  
Multimeter  
Side cutters  
Spare coax plugs (PL259)  
Spare wire to make up dipole/long wire antennas  
Spare egg type insulators

## **CHAPTER 11 - MARINE COMMUNICATIONS**

The following is intended to give you a basic knowledge of marine communications and the proper procedures to follow in the event of a marine emergency.

### Definitions

Vessel: a term for all craft capable of floating on water larger than a rowboat

Ship: a term for larger sea going vessels

Boat: a term applied to smaller craft propelled by oars, sails or engine.

### EMERGENCY SIGNALS (PHONE)

When you hear one of the following prowords write down all the information and contact the nearest Port Captain's Office.

"Mayday Mayday" The highest priority emergency call – the vessel calling is threatened by grave or immediate danger and requires immediate assistance. (life or death situation)

"Pan Pan" (pronounced Pawn-Pawn) – known as an urgency call – the vessel has an urgent message concerning the safety of the vessel or a person.

"Securité" (pronounced Securitay) The safety signal Securité is used for official messages about the safety of navigation or important weather warnings or reports

"Silence" (pronounced Seelonce) is used by the control station during an emergency to keep the channel clear.

Many yachtsmen are also radio amateurs.

## **CHAPTER 12 - THE ROAD TRAFFIC ACT No. 29 of 1989**

1. It is not the intention of this chapter to deal with the Act in detail save for certain salient aspects which are detailed below. It must be noted that the numbers appearing to the left of the text, refers to the relevant section number of the main Act and if you wish to read the entire text, then such references will be a guide to you.

***IT MUST BE NOTED THAT ALL STATUTES ARE CONTINUOUSLY SUBJECT TO AMENDMENT AND YOU SHOULD THEREFORE KEEP YOURSELF APPRAISED OF SUCH CHANGES ON A REGULAR BASIS.***

2. We hope however that the text quoted will clarify various questions that have been asked in the past by the members.

Failure to Obey Road Traffic Signs

84. (1) "... no person shall, unless otherwise directed by a traffic officer, fail to comply with the direction conveyed by a road traffic sign displayed in the prescribed manner"

84. (3) This section provides for certain drivers to disregard road traffic signs. It must be noted that it is only "The driver of a fire-fighting vehicle or an ambulance, a traffic officer who drives a vehicle in the execution of his duties, or any person driving a vehicle whilst engaged in civil defence as contemplated in an ordinance made in terms of section 3 of the Civil Defence Act, 1977 (Act No. 67 of 1977), may disregard the direction of a road traffic sign which is displayed in the prescribed manner, provided that:

- a. he/she shall drive the vehicle concerned with due regard to the safety of other traffic; and
  - b. in the case of a fire-fighting vehicle, an ambulance, or a vehicle driven by a person whilst he is engaged in civil defence as aforesaid, such vehicle shall be fitted with a device capable of emitting a prescribed sound, or with a bell, and a flashing light, as prescribed, and such device or bell shall be constantly sounded and such light shall be constantly flashing whilst the vehicle is driven in disregard of the road traffic sign who may disregard such sign.
3. There is no provision or regulation that allows you, as a HAMNET member, to disregard traffic signs unless you fall into the above description or category.

### **Speed Limit**

Speed limits may also not be disregarded unless the same provisions as quoted above for traffic signs are complied with as described in Section 86 of the Act.

***Certain Vehicles May Be Stopped and Parked at Any Place When Necessary.***

99 (1) This section provides that, notwithstanding certain other provisions as made in the Act, "... a person who drives a vehicle that is used in connection

with .... The rendering of an essential public service, may stop or park the vehicle concerned at any place where it may be necessary to do so.”

(2) “A vehicle stopped or parked in terms of subsection (1) shall, whilst such vehicle is so stopped or parked, display prescribed warning signs.”

4. It is thought that this section will provide members the necessary authority to stop whilst rendering assistance on a road to persons in need, but only if the situation can be classified as an emergency and the necessary warning signs are displayed.
5. The comments of the relevant authorities are being obtained to verify our interpretation of this section at present
6. Similar provisions are contained in section 117 which relates to freeways.
7. It may be noted that fire-fighting vehicles, ambulances and vehicles used in civil defence, as stated above in section 84 (3) are also allowed to stop or park on a road or freeway.
8. SOME POINTS ON ACCIDENT SCENE SAFETY

Make a quick assessment of the scene for anything that may cause harm to yourself or the casualties and then take the necessary precautions to prevent any further injury. In particular:

- a. Turn off the vehicle ignition, switch off motors and machines
- b. Switch off electric power, use for example a long dry stick to move live wires from a casualty. DO NOT try and move high tension wires.

*THE ELECTRICAL ENERGY FROM HIGH TENSION WIRES DISCHARGING INTO THE GROUND CAN KILL.*

- c. Where there is no danger tell the casualty to remain calm and not move. Where a vehicle is in contact with high tension lines, advise the occupants to remain in the vehicle – the tyres act as insulators
- d. If other dangers force them to leave advise them to jump clear (so they do not complete a circuit by touching both the car and the ground simultaneously). They should then shuffle to a safe a distance (keeping both feet in contact with the ground).
- e. DO NOT attempt rescues from such vehicles until a power company official has declared it safe.
- f. Prevent chemical spills from spreading. Take precautions to prevent fire and explosions if possible.
- g. Redirect traffic around a road accident so as to prevent possible further injury from passing vehicles.
- h. Cut off sources of gas an/or poisonous fumes.
- i. Move casualty to safety immediately if there is danger of further injury i.e. from fire or threatened collapse of a building.

- j. Wear gloves for your own protection.

#### 9. CALLING FOR ASSISTANCE

Once you have determined that help is needed, be it ambulance, fire, etc. call for it immediately. The following information must be passed on;

- a. Your contact number should the Emergency Services need to get back to you.
- b. The exact location of the incident – the name of the road and nearest cross road.
- c. An indication of the type and severity of the incident, i.e. a motor vehicle accident, 2 vehicles involved, 4 passengers trapped.
- d. The number, sex and approximate ages of those involved and if possible the nature of their injuries.
- e. Request special aid if you suspect a heart attack or childbirth.
- f. Remain at the scene until help has arrived and you have handed over to someone more qualified.

## **CHAPTER 13 ASPECTS OF LEGAL LIABILITY**

- 1. HAMNET members acquire no special rights or privileges in law by reason of being a HAMNET member.
- 2. The common law applies and liabilities can arise in the case of negligence.
- 3. When operating as communicators during an emergency, HAMNET members are subject to the jurisdiction of the officer commanding such emergency and will fall within the jurisdiction of such person and organisation.
- 4. Whilst acting independently during the passing of traffic, i.e. at the scene of an accident, extreme care must be taken that only factual information is passed on as you may find yourself liable for any negligence on your part that may result in harm, injury or loss to any other person.
- 5. It is for the above reason that a written record of traffic passed is of such importance. Do not rely on memory or have to resort to speculation at a future date.
- 6. Take every precaution to confirm information before giving it out, and if you are not sure, say so.
- 7. Although the law will always protect those who act in good faith and that of the reasonable man, it is always better to be safe than sorry.
- 8. MEDICO LEGAL ASPECTS OF FIRST AID

There are many legal implications to be considered when providing emergency care. Although it is not common for emergency personnel to be held liable for their actions, it is important to understand the circumstances in which you could be held liable in a court of law.

## 9. CRIMINAL AND CIVIL CLAIMS LIABILITY

In criminal liability the aim is the punishment of the offender, whereas in civil liability the aim is compensation by way of damages for the sufferer.

## 10. NEGLIGENCE

- a. In order to decide whether you are guilty of negligence, a court must first decide whether you had "a duty to act" and then whether your actions met with the accepted "standards of care". To do this the court would ask "How would a reasonable man with similar training, experience and equipment have acted under similar circumstances?"
- b. you could also be found guilty of negligence if the care you provided was outdated (when a more accepted, updated method was available). Finally you could be found negligence if you provided care beyond your level of training.

## 11. CONSENT

- a. to provide emergency care you must first have the patients consent. A conscious, competent patient has the right to refuse care.
- b. for consent to be valid it the patient must fully understand what you are going to do and why. Verbal consent is valid but written consent is desirable.
- c. If a patient is unable to give consent because of his/her condition, ask a family member for consent.
- d. In a true emergency situation where consent cannot be obtained (i.e. the patient is unconscious) you may provide care because of a legal consideration known as "The Doctrine of Necessity".

## 12. ABANDONMENT

- a. If you respond to an accident you must provide the patient with appropriate care and transportation. If you fail to do so you can be considered to have abandoned your patient
- b. abandonment may also be considered, if having transported your patient to an emergency facility, you leave without handing over the patient and all relevant information to the medical staff.

## 13. CRIMEN INJURIA

Crimen Injuria is the unlawful and intentional serious impairment of the dignity of another, i.e. the confidentiality and dignity of the patient is protected by the statutory law of Crimen Injuria.



## **CHAPTER 14 - HAZARD MATERIAL AWARENESS**

This chapter will introduce the reporting of hazardous materials (HAZMAT) incidents and stresses personal awareness for emergency communication volunteers.

### **INFORMATION**

Amateur radio operators may encounter Hazmat incidents during their travels, or they may be asked to assist with emergency communications in such incidents. Proper training is necessary for your safety.

A wrong move by you during a Hazmat operation could endanger not only your safety, but also the safety of other volunteers and members of the community.

The term "Hazardous Materials" (Hazmat) refers to any substances or materials, which if released in an uncontrolled manner, (i.e. spilled) can be harmful to people, animals, crops, water systems, or other elements of the environment. This list is long and includes explosives, gases, flammable and combustible liquids, flammable solids or substances, poisonous and infectious substances.

One of the major problems faced by emergency responders is determining which chemicals are involved and then determining the potential hazards.

The Hazardous Substances Act No. 15 of 1973, published in Government Gazette No. 9556 on 11 January 1985, legislates on the carrying of dangerous substances by road, involving the use of road tankers and tank containers having a capacity of 500 litres or more.

## **CHAPTER 15 - NATIONAL EMERGENCY TELEPHONE NUMBERS**

In the eThekweni (Durban) area all emergency calls can be telephoned to the radio room of the Durban Disaster Management unit who are in radio communication with all the emergency services in the area.

The telephone number is, code 031 Durban 361 0000

## **CHAPTER 16 CONCLUSION**

HAMNET welcomes comment on it's operations and is ever seeking to improve the services offered to the community and it's fellow amateurs.

References used in the compilation of this manual

- a. The National Hamnet Manual
- b. The ARRL Amateur Radio Emergency Communications Course.