Name of municipality

Amateur Radio Emergency Communication Plan

Introduction

The purpose of this document is to establish an **Amateur Radio** emergency communication plan for [name of municipality or city]. In case of a disaster affecting this community, emergency management communication links to the surrounding communities and to the regional and provincial Emergency Operating Center (EOC) may have to be established using Amateur Radio.

This plan is for *emergency management communications*. Routine traffic such as registration and inquiry can be handled when time permits using the facilities described in this plan or on other frequencies as personnel and equipment are available

The *Provincial Emergency Program* regional office is located in [city]. There is a permanent Emergency Operating Center (EOC) located in the regional office and the greatest number of Amateur Radio resources in the area, both equipment and people, are also located in [city]. It is therefore expected that [city] will become the primary communications center for the region. Alternative sites such as [city] may be required to assume these duties depending upon the situation.

References

- *Amateur Radio Emergency Communication Guide*. This book is written by amateur radio operators who are members of the PEP *Radio Advisory Committee.* The *Provincial Emergency Program* publishes it for us. Two or three copies are provided to each community. The *Municipal Amateur Coordinator* (MAC) and the *Deputy Municipal Amateur Coordinator* (DMAC) should each have a copy. A third copy should be located in the municipal (city) EOC communication room.

- Municipal Emergency Plan. (Most regional districts do not have a plan.)

- *Municipal Amateur Radio Plan* for neighboring communities.

- *PEP And The Radio Amateur* brochure from PEP

- *Surviving A Heating and Power Failure* by Graig Pearen

- *Communicating Without The Power Grid* by Graig Pearen

- Prince George Amateur Radio Club Internet site. www.pgarc.org

PEP [region] Regional Office
[address]
[city, BC]
[postal code]

[xxx-nxx-xxxx] Tel
[xxx-nxx-xxxx] Fax

PEP Victoria
Emergency Coordination Centre
800-663-3456 Tel
250-387-2957 Fax
250-387-3754 Radio Room

Amateur Radio personnel are radio operators only. They are not interpreters, evaluators, field commanders or media liaisons. Their sole purpose is to transmit messages given to them by responsible officials!

By this plan, Amateurs are prohibited from transmitting personal observations or opinions, unless specifically requested to do so by a responsible official. This avoids misinterpretation (including by citizens who may be listening in on scanners).

Acknowledgements

Numerous amateur radio operators in the communities listed have helped in the production of this emergency communication plan. A special thanks goes to the people who have installed and maintain the repeater equipment linking our communities. The sample plan that was used as the basis for this document was written and made freely available to all by Graig Pearen, VE7EAP

Updates

A copy of this plan and current copies of all the appendices must be sent to the regional emergency communication coordinator and to the neighboring communities.

To facilitate keeping the plan current, all variable data that requires constant updating such as the call out lists and repeater lists are in attached appendices. Only the pages that are changed need to be copied and distributed.

This plan will require constant updating as people move and equipment or conditions change. Please mail, fax or e-mail any changes or suggestions to [full name] for inclusion in the next update of this plan. If you have any questions or require additional information, feel free call [first name] at any time at home or at work.

[full name, call sign]
[address]
[city, BC]
[postal code]

xxx-nxx-xxxx	Res Tel (with answering machine)
xxx-nxx-xxxx	Res Fax
xxx-nxx-xxxx	Cell
xxx-nxx-xxxx	Bus Tel (with voice mail)
xxx-nxx-xxxx	Bus Fax
xxx-nxx-xxxx	Pager
[e-mail address]	internet e-mail

General

Disaster management operations will be controlled from a *Provincial Field Response Centre* (PFRC). Whenever possible, the primary PFRC will be located near but outside the disaster area with an alternate location established if required. Communications between our community and the PFRC will be required. Home stations that are functional on emergency power will be designated as “key stations”.

The primary communication path will be the VHF repeater network between these communities and [city with regional office]. The repeater frequencies and technical characteristics are listed in appendix B. As a backup to or in addition to the VHF network, HF radios may be used on the following pre-assigned frequencies. In the event that these frequencies are unavailable, move up in frequency until a free frequency is located.

*After the nets are established, these frequencies will be used for a **closed net** between the PFRC, regional EOC and PEP headquarters. Inter-region and non-governmental communications will be handled on other frequencies as assigned at the time of the event. The BC Public Service Net should be monitored by the general Amateur population for instructions.*

80M band	3735 KHz primary	3745 KHz secondary
40M band	7060 KHz primary	7070 KHz secondary

When notice of a disaster in any of community in the region is received, radio station [call sign] will be activated from the regional office This station will operate on the VHF repeater network and on one of the HF frequencies listed above. The first choice for HF operation will be the 80-meter band starting at 3735 KHz. If 3735 is in use, [call sign] will be scanning up in frequency looking for stations calling them. Other [city with regional office] stations may be activated on other HF frequencies as required.

Standard amateur radio directed net radio procedures and forms will be used. These procedures and sample forms are provided in the *Amateur Radio Emergency Communications Guide* written by amateur radio operators and published for us by the Provincial Emergency Program.

Appendix A Frequency assignment

Appendix B Repeaters

Appendix C Call out lists

Appendix D Regional resources

Appendix E Equipment owned by amateurs

Organizational Structure

Your *Municipal Amateur Radio Coordinator* (MAC) and their Deputy (DMAC) are responsible for providing the municipal or city Amateur Radio Emergency Communication Plan. All local Amateurs, the city's Emergency Plan Coordinator and Emergency Communication Coordinator, the Regional Amateur Radio Representative, and the MAC and DMAC in the neighboring communities should all have copies of this plan.

The MAC and DMAC are "employed" by the city, not by the Provincial Emergency Program. The chain of command is: Mayor and council; Emergency Plan Coordinator; Municipal Emergency Communication Coordinator (MECC); Municipal Amateur Coordinator (MAC). The MAC and DMAC must work closely with the Municipal Emergency Communication Coordinator. The Municipal Emergency Communication Coordinator oversees all modes of communication, not just radio. In smaller communities, the MAC/DMAC may also fill this role. The MECC job is not an Amateur Radio job and therefore this function is not covered by any Amateur Radio plan. The Amateur plans must be integrated into the city or municipal plan.

All communities may be affected by power outages, a shortage of natural gas, and possibly limited or no telephone or cellular service. Be prepared to live and operate your radio station in blackout conditions! In addition to helping in their own communities, Radio Amateurs should to be prepared to assist the affected area by handling messages via radio and by supplying relief radio operators to neighboring communities if required.

Activation

The initial call out should come from the municipal or regional staff. They will provide a PEP task number. If they forget to do so, ask them for it and record it along with the name of the caller, date, and time that you received the call. If the MAC or DMAC does not receive the initial call, they must be notified immediately by the person who did receive the call. All activities including calls to dispatch or notify personnel must be logged with date, time, and a very brief description of the event.

The person who received the emergency call must:

- Start an event log and record every event with date, time, and brief description
- Activate the local call out procedure as per this Plan. Amateurs not dispatched immediately should be asked to standby for possible call-out.
- Ask the repeater maintenance people to stand-by to take batteries or power plants to the radio sites or to solve any problem that may arise.
- Upon arrival at the EOC or PFRC (Provincial Field Response Centre) MAC, DMAC, and all staff must:
  - Identify themselves to the staff who is there.
  - Sign in on the PEP task registration form (This initiates your WCB and liability insurance).
  - Report to the Municipal Emergency Communication Coordinator (MECC) and MAC or DMAC.
  - Assist as requested to set up the communication room.
  - Establish VHF communication within the affected area as required.
  - Assist the MECC if requested to assess the need to communicate with neighboring communities.
  - Establish VHF and HF links with the Radio Amateurs in neighboring communities if required.
  - Establish VHF and HF links (Amateur and commercial) to the regional office if required.
- Upon arrival at any other location, each person must:
  - Identify themselves to the staff who is there and report for duty.
  - Sign in on the PEP task registration form (This initiates your WCB and liability insurance).
  - Establish VHF communication to the EOC and to any other designated location.

NOTE: The first station on the air will assume temporary net control duties.

Regional EOC

When there is regional involvement, VE7xxx in [city with regional office] will act as net control to relieve the radio staff in the affected communities of this added workload. An alternate Net Control Station (NCS) may be assigned as required.

VE7xxx has been set up as a permanent radio station in the regional EOC (Emergency Operating Centre) in the PEP (Provincial Emergency Program) regional office in [city]. [A standby power plant has been provided. The VHF and HF radios are capable of operation from 12vdc battery power if required, however, none is provided.]

When word of an impending disaster or emergency is received, the call out procedure will be activated to dispatch staff or to alert all Amateurs to "Standby for possible call-out". Designated Radio Amateurs will go the regional EOC and activate radio station VE7xxx on the assigned frequencies. Communication will be established with the Amateurs in the affected and neighboring areas.

The regional EOC will assume net control duties to relieve the radio staff in the affected communities of this added workload. If required, radio operators in another community may be requested to act as net control.

In addition to helping in their own community, Radio Amateurs should to be prepared to assist the affected area by handling messages via radio and by supplying relief radio operators to other communities if required.

Station Operation

Municipal Emergency Communication Coordinator (Not an Amateur Radio function)

- Assign staff duties
    - Radio operators
    - Message clerks
    - Support staff
- Ensure that each agency schedules replacement staff for 24-hour coverage
- Coordinate alternate VHF frequencies for local operations (reception centres etc.)
- Ensure an adequate supply of forms etc.
- Ensure that all staff gets regular work breaks to prevent burnout
- Coordinate all other radio room functions

Net Control Duties (Amateur)

The first station on the air will act as temporary net control. Stations in close proximity to the disaster will have a heavy workload. To make their job easier, VE7xxx in [city with regional office] or another designated station will assume the net control job as soon as possible.

The net shall be run as a formal “directed net”. The net control station (NCS) will ask for traffic on a regular and frequent schedule. When all emergency traffic has been passed, ask for priority traffic. When all priority traffic has been passed, ask for routine traffic.

*The net between the regions (PFRC) and the provincial EOC (PECC) shall be a "**closed net**". All Amateurs willing to assist with other traffic should stand by on the BC Net (3729 KHz) for instructions.*

Radio Operators (Amateur and commercial)

- Identify and state the purpose of the net
- Keep a record of stations joining the net
- Keep a record of what traffic stations have to send
- Pass necessary traffic in order of priority (Emergency, Priority, Routine)
- Record all messages received or sent on the STATION LOG form
- Assign incoming and outgoing message clerks

Incoming Message Clerk (Not an Amateur Radio function)

- **Log** all (amateur and commercial) messages received by the radio operators.
- **Deliver** or arrange delivery of every incoming message.
- Does not have to be a licensed Amateur but should know proper message formatting.

Outgoing Message Clerk (Not an Amateur Radio function)

- **Check** all (amateur and commercial) outgoing messages prior to giving them to the radio operators
    - Addressee name and location
    - Sender name & location
    - Date (yy mm dd)
    - Time (24 hour format)
    - EMERGENCY....life & death urgency
    - PRIORITY.....important time-sensitive messages
    - ROUTINE.....all other messages
- **Assign** the next sequential message number to the message
- **Log** all messages that are to be sent in the OUTGOING MESSAGE REGISTER
- **Deliver** the message to the radio operators
- Does not have to be a licensed Amateur but should know proper message formatting.

Personal Preparedness

As amateur radio operators, we are expected to be able to help our communities during emergency conditions. To do this we must first be confident that our families are safe. You and your family should analyze your personal situation and implement any changes necessary to insure their comfort and safety in blackout conditions. Plan for no power, no natural gas, no telephone and no community services for up to 7 days. Pay particular attention to heat, food, and water and human waste disposal. After you have done this, prepare the equipment and supplies that you will need to be part of the radio communication team for your community.

In addition to the standard emergency kit, the Radio Amateur should:

- Keep your vehicle fuel tanks at least half full at all times. Don't park it even over night with an empty tank!
- If you have a safe storage area, keep extra fuel, oil, propane etc. on hand..
- Keep your radio batteries charged.
- Have extra radio batteries (preferably a battery pack for alkaline batteries)
- Have 12VDC power cords for all radio equipment *including hand held radios.*
- Your emergency tool kit should include basic tools for electrical & electronic work and a multi-meter.
- Keep HF & VHF radio equipment (including antennas) ready to go at a moments' notice.
- If you have a power plant, test it regularly and keep fuel on hand for it.
- Survival clothing as appropriate for the season ready to grab & run.

Glossary

PECC: Provincial Emergency Control Centre. The Emergency Operating Centre in the Provincial Emergency Program headquarters building in Victoria.

EOC: Emergency Operating Centre. The control centre consisting of conference rooms, a radio room, and rest area from which emergency management functions are performed. Each community and each region of the province should have a primary and an alternate EOC. The EOC may be permanent or a pre-defined facility that can be quickly set up in an emergency. The regional EOC in Prince George is a permanent facility.

Formal Message: A written message preferably in the standard format

NCS: Net Control Station. The radio station that is in charge of radio procedures on the frequency in use.

MECC: Municipal Emergency Communications Coordinator.

PEP: Provincial Emergency Program. A government organization which supports volunteer municipal emergency preparedness groups such as Amateur Radio, Search and Rescue (SAR), and Emergency Social services (ESS). Note that by provincial statute, emergency preparedness is a **municipal** responsibility and that PEP is an advisory and support group ONLY. Amateur Radio, SAR and ESS volunteers all work for their municipalities

PFRC: Provincial field response Centre. The temporary field headquarters of the provincial government agencies involved in the disaster management and recovery.

Tactical Message: A verbal message that is not recorded in the incoming or outgoing message register but may be recorded in the station log that is maintained by the radio operator. These messages often consist of conversations between the sender and the addressee. NOTE: It is legal for non-amateurs to talk to each other on Amateur Radio as long as the Amateur Radio operator is present (in control of the station). Proper procedures must still be followed.

Technical Notes

Battery Charging

If an adequately filtered battery charger is not available, an external LC filter should be installed between the battery charger and the battery. A very large electrolytic capacitor (several thousand uF) should be placed across the charger output with a large power choke (several henrys) in series between the charger and the battery. It is important that the capacitor be on the charger side of the choke and not across the battery. If you need assistance, call [name, e-mail address, phone number].

A battery should be bulk charged at 1/10c that is 20 amps for a 200 amp hour battery. More than this will possibly shorten the life of the battery and a lower current takes too long to recharge it.

Battery Selection

When selecting a battery for permanent installations for repeaters or base stations, use a pair of 220 amp hour 6 volt golf cart batteries in series and parallel as many sets as required to provide the desired operating time.

Golf cart batteries cost about the same per amp-hour as for other lead-acid battery types but they will last much longer. A starting battery, even a ‘cat battery’ is designed for high current, shallow cycle service and shouldn’t be discharged more than 10 - 20 % of its rated capacity. Deep cycle RV or marine batteries are slightly better but not much. Golf cart or forklift batteries may be discharged repeatedly to 80% of their rated capacity without damaging them. If you need assistance, call [name, e-mail address, phone number].

Appendix A

Frequency Assignment

Call Out / Standby

Condition	Frequency	Comments
Repeater fully operational	146.94-	No backup power
Power failure	146.94 SX	Radios are sitting on this frequency. Announce "simplex"
Alternate local repeater	145.43-	Backup power

Reception Centres to EOC

Condition	Frequency	Comments

Regional (Inter-community)

Condition	Frequency	Comments

PEP regional office to EOC

Condition	Frequency	Comments

Incident to EOC

Condition	Frequency	Comments

Appendix B

Repeaters

CITY	RPTR	FREQ	LINKS	BACKUP PWR	NOTES

Note 1: Repeater equipment is all 12 vdc powered. No batteries on site.
Note 2:
Note 3:

Appendix C

Call Out Lists

First Call

Name	Call	Frequency	Home	Business	Cell	Pager	Address

Second Call

Name	Call	Frequency	Home	Business	Cell	Pager	Address

Backup

Name	Call	Frequency	Home	Business	Cell	Pager	Address

Appendix D

Regional Amateur Radio Resources

VE7xxx	VHF & HF station in EOC at the PEP office, power plant (in town)
VE7xxx	Battery operated VHF & HF station, grid/solar/wind/generator power (out of town)
VE7xxx	Battery operated VHF & HF station (in town)
VE7xx	Cub trailer, portable HF vertical antenna, battery, small power plant (stored by VE7xx)
-	City Of [city with regional office] EOC grid/battery/generator power

Appendix E

Resources Owned By Amateurs

The following is a list of equipment that local Amateurs may or may not be able to supply during an emergency. This equipment is not owned by any emergency agency and therefore may or may not be available when it is needed. That said, if it is available and the owner is willing to loan it during an emergency, it may be a life-saver.

Power Plants

4X4 vehicles

Shelter & work space

Radio Equipment

Other