



Emergency Radio Communications Plan

Northwest Region

May 3, 2010

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Acknowledgements

Numerous Emergency Radio Communicators (ERCs) have helped in the production of this emergency communications plan, including Kim Olfert, VE7DZV, Mike Pilon, VE7DQC, Graig Pearen, VE7EAP, Kevin Hartley, VE7OVY, and Glenn Grieve, VE7CNQ. Special thanks go to the people who have installed and maintain repeater equipment, especially those that link our Region's eastern communities with the rest of the Province.

Introduction

The purpose of this document is to establish an emergency radio communications plan for the communities in the Provincial Emergency Program’s (PEP) Northwest (NWE) Region (Figure 1. See also Appendix A, Figures 2-5).

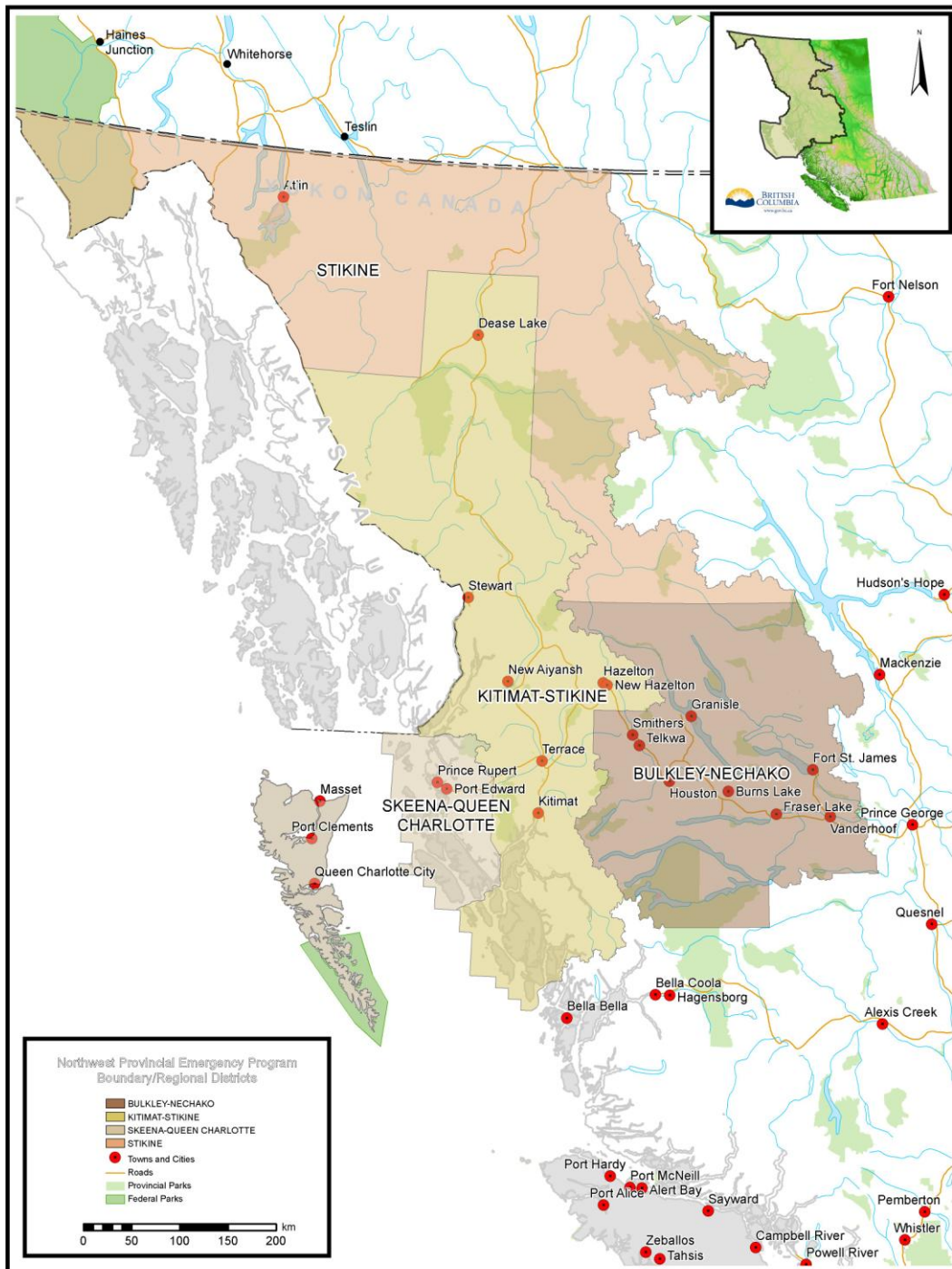


Figure 1. Northwest Region of PEP.

The eastern portion of the NWE Region has a linked VHF system along parts of Highway 16 from Hazelton to Prince George and beyond. There are no linked VHF repeaters in the western portion of this region (west of Hazelton on Hwy. 16 or anywhere on Hwy. 37), although Terrace, Kitimat and Prince Rupert each have at least one, non-linked repeater system. The Northern Net (3.775, LSB on Sundays and Wednesdays, at 0100Z), and the BC Public Service Net (www.bcpsn.com, 3.729, LSB every night at 0130Z) are the main methods of keeping in touch with other Amateurs in the province. In addition to these nets, the Terrace PREOC radio station, VE7NWZ, holds a local net (146.600/146.000 MHz, FM) and attempts to check into the BC PEP net (3.735 MHz, LSB), both on Wednesday nights at 1900 Local Time (same local time throughout the year).

This plan covers emergency communications for provincial-regional and local governments, public safety (health and welfare) messages, and emergency communications support for essential services and industries, such as BC Hydro. Messages will be prioritized and handled accordingly. The facilities and frequencies described in this plan will be used with other frequencies, personnel and equipment assigned as required.

There is a permanent Provincial Regional Emergency Operations Centre (PREOC) located in the basement of the City of Terrace's main office building at 3215 Eby Street, next to the RCMP detachment and the BC Ambulance station. Emergency response on a regional level will be coordinated from this facility. The PREOC houses the NWE emergency radio station, VE7NWZ, which serves the PREOC during emergencies.

Depending on the extent or location of an emergency or disaster, part of the VHF network in the eastern part of the NWE region may be used. Local areas can be isolated from the rest of the network to allow handling a local event without tying up the entire network. Simplex frequencies will be used where appropriate, leaving the repeater network available for inter-community traffic. The local VHF calling frequency in all areas is 146.52 MHz simplex.

Please be aware that, while your volunteer help is greatly appreciated, your role in any emergency is very specific:

Emergency Radio Communicators (ERC) are radio operators only. They are not interpreters, evaluators, field commanders or media liaison. Their sole purpose is to transmit messages given to them by responsible officials, usually the Director.

ERCs 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).

In an emergency, any available communications methods will be used. The primary role of an ERC is to provide backup communications to all the telephone, cell, fax, commercial radio and other systems that are used in our society. This includes assisting government, primary emergency response agencies (police, fire, and ambulance), other volunteer groups, such as Search and Rescue (SAR), PEP Air, and Emergency Social Services (ESS), and essential services such as BC Hydro.

Provincial government emergency operations will be controlled from one or more PREOCs such as the one in Terrace. A radio station is set up in each PREOC. Existing amateur radio nets and their net control stations will be utilized where available. Home stations that are functional on emergency power may be designated as “key stations”.

Northern Net:.....Joint (NEA & NWE) regional net covers northern BC
Sun. & Wed, 0100Z, 3.775 MHz, LSB

BC Public Service Net:.....Standby, dispatch, and Emergency Social Services traffic
Daily, 0130Z, 3729 MHz, LSB

PEP Net:.....Government communications between regions and headquarters
Wed., 1900 Local, 3.735 MHz, LSB

NWE Region Net:.....Wed., immediately following the PEP net
146.600 MHz FM, - split

When notice of a disaster in any community in the NWE region is received, radio station VE7NWZ may be activated in the NWE PREOC. A VHF repeater radio network extends across much of the NWE region but cannot be accessed west of the Hazelton area. Therefore, if requested, VE7PGZ in Prince George may be activated to assist with a situation in the NWE region. The Northern Net becomes the Northern Emergency Net, and the Northern Net NCS will become the NCS for the Northern Emergency Net on HF.

In general, significant communications between PREOCs should be conducted using Airmail, as it uses Pactor, a packet protocol with high sensitivity in noisy conditions and with special accuracy due to robust error checking.

In addition to Airmail, VE7NWZ will first operate on one of the PEP Net or Northern Net frequencies. The first choice for HF voice operations will be on the 80 m band and the second choice will be the 40 m band, both using LSB. If propagation in these bands is difficult, then the 20 m, USB, and if necessary, the 15 m USB will be used.

In major disasters, three portable PEP radio stations are available for use in this area. The closest one is located in Prince George. These portables have HF/VHF & Airmail capabilities.

Announcements will be made on all repeaters and appropriate HF nets to notify the neighboring communities that an event is in progress. When the regularly scheduled Amateur nets are activated, the NCS should be notified of on-going or recently resolved events so they can answer questions.

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

Terrace PREOC

VE7NWZ has been set up as a permanent radio station in the PREOC at the PEP office in Terrace. Standby power and all supplies are provided on site.

When word of a disaster or emergency is received, designated ERCs will go to the PREOC and activate radio station VE7NWZ on the assigned frequencies. Communication will be

established and maintained periodically with the ERCs in the affected and neighboring area, and possibly with other PREOCs.

VE7NWZ may 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.

Local Authority Emergency Operations Centre (EOC)

The Local Authority ERC and Deputy ERC are responsible for providing a local emergency radio communications plan. All local ERCs, the Emergency Program Coordinator(s), and the Regional Emergency Radio Representative (RERR) and Deputy(s), as well as ERCs in neighboring communities, should have copies of this plan.

The ERC is “employed” by the community’s emergency program. The ERC should work with local emergency staff to ensure that the emergency radio plan fits into the community plan. The community may have a Radio Station Manager to oversee all modes of radio communication. In smaller communities, the ERC or deputy often fills this role. ERCs may be asked to assist police at roadblocks, queue ambulances for loading, etc.

When word of a disaster or emergency is received, designated ERCs will go to the EOC and activate their radio station on the assigned frequencies. Communication will be established and maintained periodically with the ERCs in the affected and neighboring area and with the PREOC.

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

Activation

The person who received the emergency call must:

- Start an event log and record every event with date, time, and brief description.
- Activate the call out procedure for your station. ERCs not dispatched immediately should be asked to stand by for possible call-out.
- If applicable, 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. If required and available, portable repeaters may be deployed.
- Upon arrival at the EOC or PREOC each person must:
 - Identify themselves to the staff who is there.
 - Sign in on the PEP task registration form.
 - Report to the radio station manager or director, as appropriate.
 - Establish VHF communications within the affected area as required.
 - Assist in the assessment of communications needs.
 - Establish VHF and HF links with neighboring communities if required.
 - Establish VHF and HF links to the PREOC if required.
 - Post the communications state-of-readiness and keep it current.
 - Do not leave without the knowledge of your supervisor.
- Upon arrival at any other location, each person must:
 - Identify themselves to the staff that is there and report for duty.
 - Sign in on the PEP task registration form.
 - Establish VHF communications to the EOC.
 - Do not leave without the knowledge of the site supervisor and the EOC (ERC).

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

Net Operation

Standby High Frequency

The BC Public Service Net on **3729 KHz (LSB)** will be used to assign jobs and dispatch radio operators. Therefore, ERCs should check into this net and stand by on its frequency for further instruction and to handle traffic.

Regional Nets

The primary Amateur Radio communication paths within the region are the interior BC Northern Emergency Net on HF to communities not served by the VHF network, and the VHF repeater network in the eastern portion of the NW Region.

One of the following HF frequencies will be used depending on propagation:

80M band	3.775 MHz LSB
40M band	7.050 MHz LSB
20M band	14.175 MHz USB
15M band	21.130 MHz USB

PEP Net

The following frequencies will be used for a **closed net** between the six PREOCs, the PECC, and the municipal EOCs. If this frequency is busy, EOC to PREOC traffic may have to move to the Northern Emergency Net.

160M band		1.900 MHz LSB
80M band	3.735 MHz LSB primary	3.745 MHz LSB secondary
40M band	7.060 MHz LSB primary	7.070 MHz LSB secondary
15M band	21.120 MHz USB primary	21.130 MHz USB secondary

Net Control Duties

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, VE7NWZ in Terrace 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. When all traffic has been handled, bulletins and announcements may be read. Following that, general check-ins and personal chatter may be used to relieve stress and hold the frequency. This would be a good opportunity to promote and discuss upcoming Amateur Radio meetings, events, etc.

HF Regional Net

The BC Northern Emergency Net will be run as a joint regional net to cover the province from 70-Mile House north. The net control stations of the BC Northern Net have agreed to operate the **Northern Emergency Net**. When alerted to a problem they will establish a regional net on 3.775 MHz (80m, LSB). If the 80M band is dead, **7.050 MHz** (40m, LSB) will be used and if that band is dead, **21.130 MHz** (15m, USB) will be used.

VHF Regional Net

The western branch of the northern VHF repeater network covers the Highway 16 corridor from Prince George to the Hazeltons in the NWE region. The NCS for this network will be VE7PGZ in the Prince George PREOC or a designated station. Many of the repeaters on this network have battery backup and some are co-located in commercial sites and are backed up by diesel power plants. If an event is regional or local in nature, this network may be sectionalized to suit the situation. However, the integrity of the regional net must not be broken by taking repeaters off the net for local operations. Local nets on other frequencies will be used for local communications.

Net Preamble

This is the BC <HF/VHF> Northern Emergency Net. Net control is VE7____. My name is _____. This net is being sponsored by the Provincial Emergency Radio Communications Service in support of the communities in Northern BC. Check-ins will be called for every hour and bulletins will be read as they become available. Directed net procedures will be used followed by general check-ins. Traffic will be handled as required.

Net Holding Announcement

This frequency is being used for the BC Northern Emergency Net. This net is sponsored by the Provincial Emergency Radio Communications Service in support of the communities in our area. Net control station is VE7____ and my name is _____. Roll call will be held every hour and bulletins will be read when available. When this frequency is not in use for the net, you are welcome to use it for personal communications. We ask that you keep each transmission short to permit Net Control to interrupt if required.

Optional announcements

PERCS is the Provincial Emergency Radio Communications Service. It is a joint venture between Radio Amateurs of Canada, the Provincial Emergency Program Radio Advisory Committee, Amateur Radio Emergency Service, and all the HF and VHF nets in BC. More information can be obtained from your Regional Emergency Radio Rep or at www.percs.bc.ca.

The Provincial Emergency Program Net is operating on <3735 KHz> +/- QRM for communications between the Regional PREOCs and PEP headquarters.

The BC Public Service Net is operating on 3729 KHz for check-ins from interested Amateurs. This net is responsible for province-wide job assignment, radio operator dispatch, and health and welfare traffic

Roll call will start with the ERC or designated Amateur from each community.

Northern Emergency Net Control Stations

The *Northern Net* control stations run the *Northern Emergency Net* when it is activated. A list of these stations and their contact information is contained in an appendix to this plan.

Staff Duties Overview

Station Managers

- Assign staff duties:
 - Radio operators.
 - Message clerks.
 - Support staff.
- Schedule replacement staff for 24-hour coverage (including your own help).
- Assign 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.

Radio Operators

- 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, Welfare).
- Record all messages received or sent on the Station Log form.
- Assign incoming and outgoing message clerks.

Incoming Message Clerk

- **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

- ❑ **Check all** (amateur and commercial) outgoing messages prior to giving them to the radio operators.
- ❑ Addressee name and location.
- ❑ Sender name & location.
- ❑ Date (yyyy mm dd).
- ❑ Time (24 hour format).
- ❑ EMERGENCY.....life & death urgency.
- ❑ PRIORITY.....important time-sensitive messages.
- ❑ ROUTINE.....all other messages relating to operations.
- ❑ WELFARE.....questions and information about health and welfare of individuals.
- ❑ **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.

Note: It is legal for non-amateurs to talk to each other on Amateur Radio as long as an Amateur Radio operator is present. Proper procedures must still be followed.

Contacts

PEP Northwest Regional Office

Suite 1B - 3215 Eby Street

Terrace BC V8G 2X8

250-615-4800 (Tel)

250-615-4817 (Fax)

250-615-4813 (Radio room)

Provincial Emergency Coordination Centre (PECC)

Block A – Suite 200
2261 Keating Cross Road
Saanichton BC V8M 2A5
250-952-4913 (Tel)
250-952-4888 (Fax)
250-952-5571 (Radio room)

Mailing Address:

PO Box 9201 Stn Prov Govt
Victoria BC V8W 9J1

Updates

This plan will require constant updating as people move and equipment or conditions change. Please fax or e-mail all changes or suggestions for inclusion in the next update of this plan to your regional contacts listed below.

Name	Email	Phone
Glenn Grieve, VE7CNQ NWE Regional Emergency Radio Representative (RERR)	Glenn_Grieve@Hotmail.com	250-635-4126 250-615-3704
Maurie Hurst, NWE Regional Manager	Maurie.Hurst@gov.bc.ca	250-615-4800

References

- PERCS Website: www.percs.bc.ca
- PEP Website: www.pep.gov.bc.ca

Appendix A – Northwest Emergency Radio Communicators

Northwest PREOC (Terrace)

Station Managers:

Allen Wootton	VE7BQO	250-635-7101 (H)	awootton@uniserve.com
Keith Gosse	VE7ECK	250-635-5865 (H)	kgosse@uniserve.com
Glenn Grieve	VE7CNQ	250-635-4126 (H) 250-615-3704 (C)	glenn_grieve@hotmail.com

Northern Net Control:

Dennis Wight	VE7IJJ	250-635-3508 (H)	dcwight@telus.net
Ron German	VE7EDZ	250-624-5540 (H)	rgerman@citytel.net

Additional ERCs

Jack Wreggitt	VA7OT	250-635-4380 (H)	jackwreggitt@telus.net
Doug Davies	VE7DRF	250-638-1245 (H)	dkdavies@telus.net
Pierre Le Ross	VA7ESE	2250-635-3508 (H)	
Dennis Wight	VE7IJJ	250-635-2770 (H)	dcwight@telus.net

Northeast PREOC (Prince George)

To access linked repeaters from Pr. George to Hazelton – ERCs must be tasked though the Northeast Region.

Graig Pearen	VE7EAP	250-560-5678 (H) 250-617-5512 (C)	grraig@pearen.ca
Frank VanderZande	VE7AV	250-964-7082 (H) 250-961-1173 (C)	frankvdz@telus.net
Andy Townsley	VE7EQU	250-964-1680	

Regional District of Bulkley-Nechako

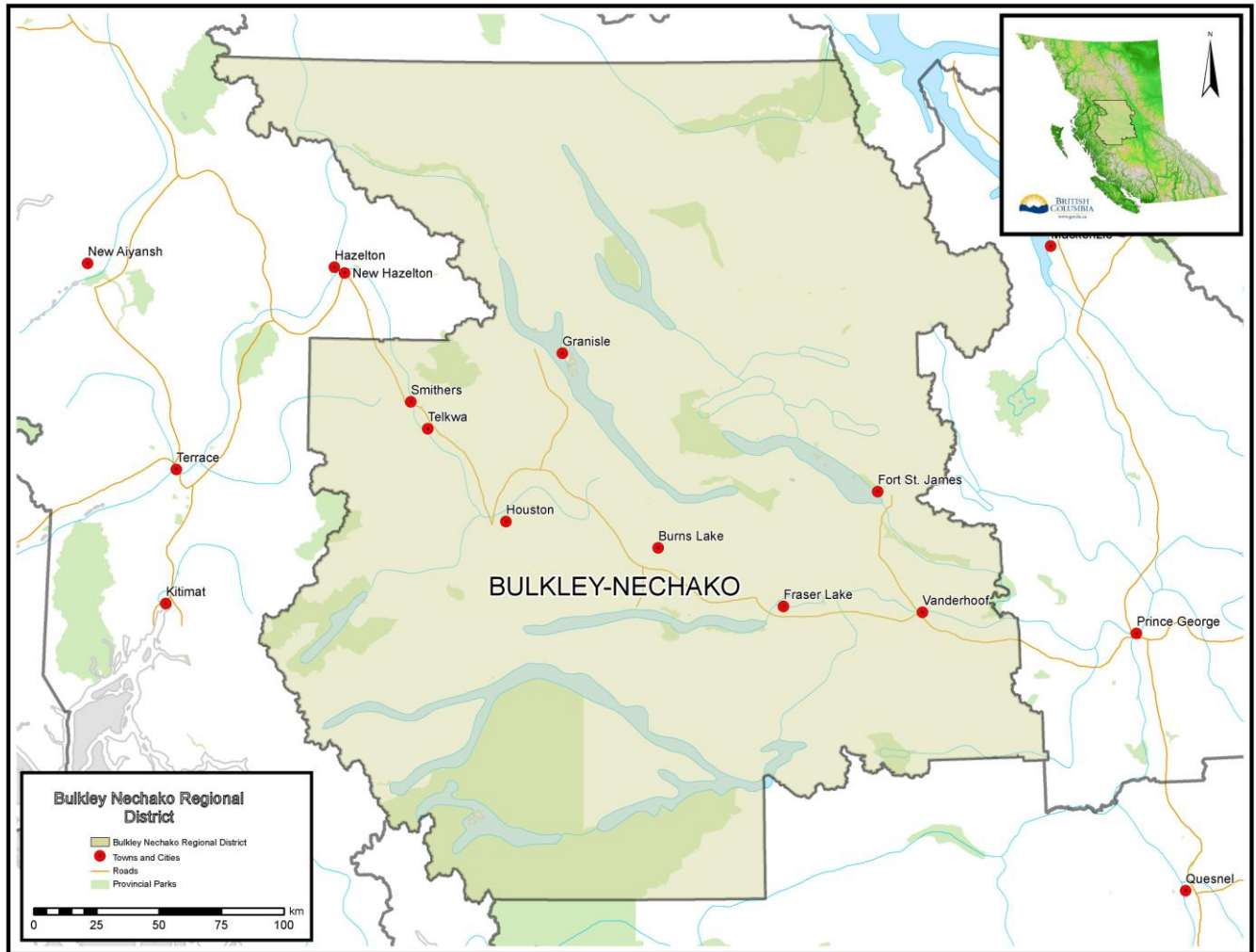


Figure 2. Bulkley-Nechako Regional District

* Community with Amateur Radio Operator(s)

** Community with volunteer ERC(s)

Burns Lake.....	**	Southbank.....	*
Fort Fraser.....	*	Takysie Lake.....	*
Fort St. James.....	**	Telkwa.....	**
Fraser Lake.....	**	Topley.....	*
Houston.....	*	Vanderhoof.....	**
Smithers.....	**		

Regional District of Kitimat-Stikine

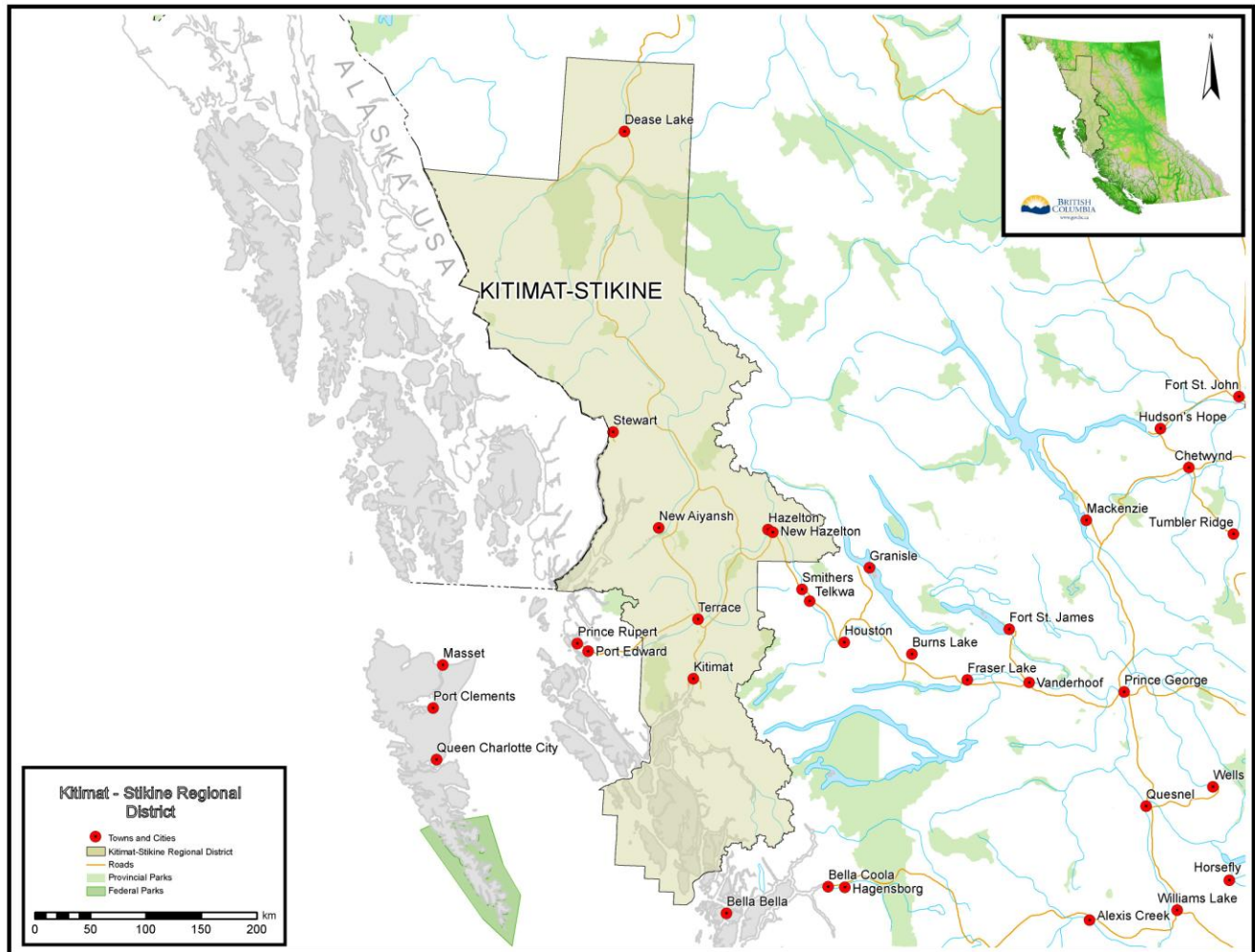


Figure 3. Kitimat-Stikine Regional District

* Community with Amateur Radio Operator(s)

** Community with volunteer ERC(s)

Hazelton.....	*	South Hazelton.....	*
Kemano.....	*	Stewart.....	*
Kitimat.....	**	Terrace.....	**
Kitwanga.....	*	Thornhill.....	*
New Hazelton.....	*		

Regional District of Skeena-Queen Charlotte

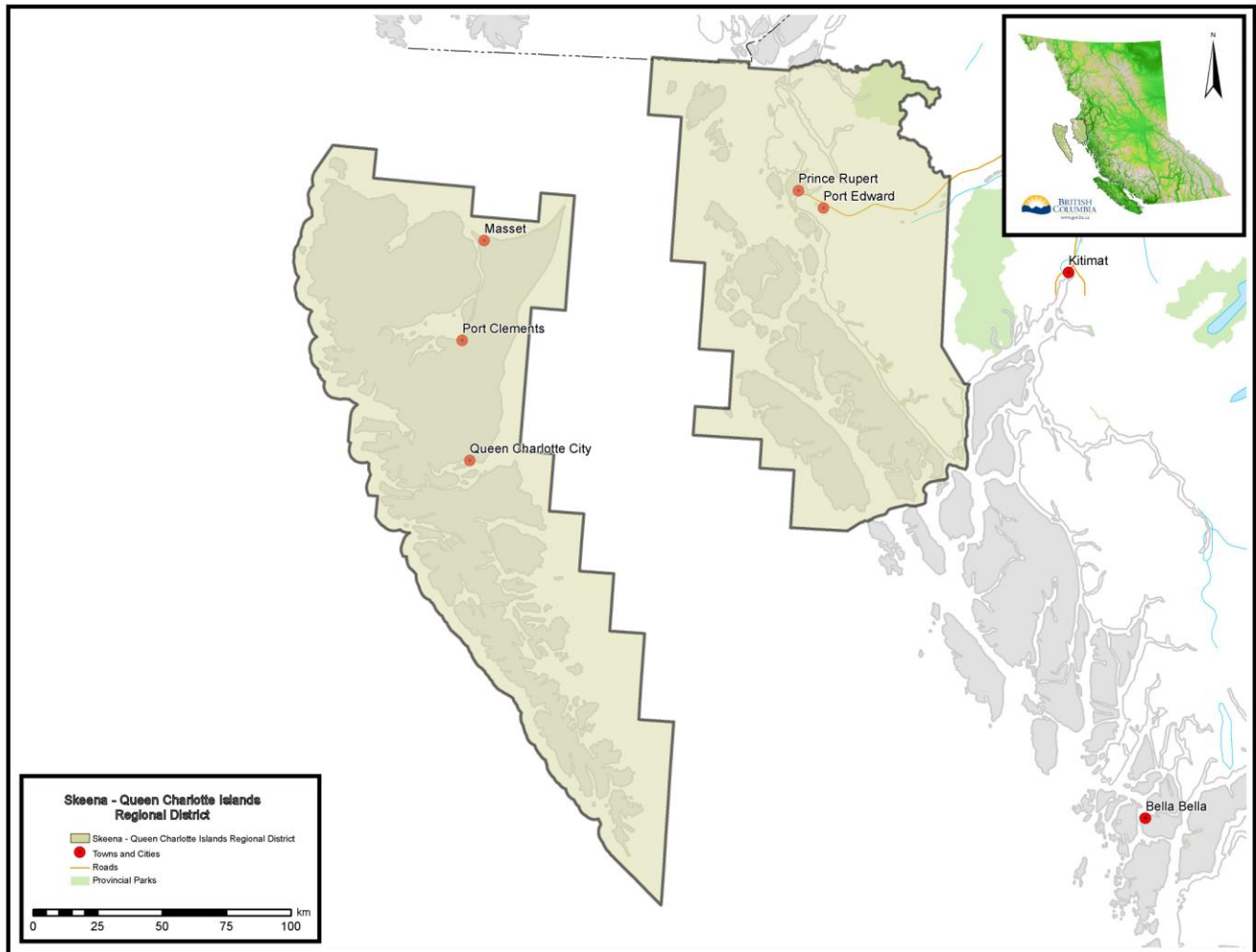


Figure 4. Skeena-Queen Charlotte Regional District

* Community with Amateur Radio Operator(s)

** Community with volunteer ERC(s)

Port Clements **

Port Edward *

Prince Rupert *

Queen Charlotte **

Sandspit **

Tlell *

Stikine (unincorporated – provincial jurisdiction)

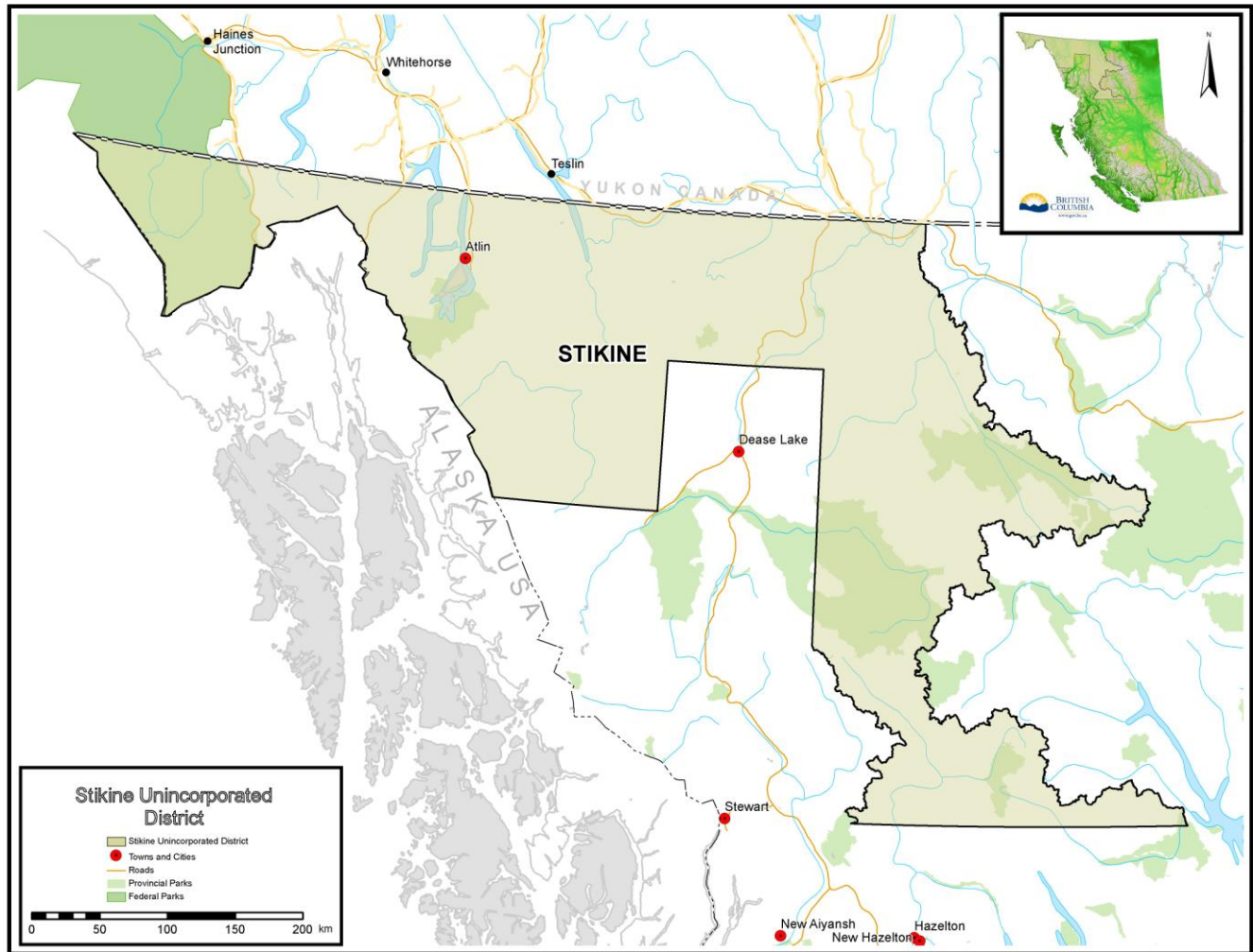


Figure 5. Stikine District

* Community with Amateur Radio Operator(s)

** Community with volunteer ERC(s)

Atlin.....*

Yukon Territory (may assist in emergencies at the request of the Regional Manager)

Watson Lake.....*

Whitehorse.....*

Many of the communities in the NWE Region do not have emergency radio stations or Emergency Radio Communicators (ERCs). It is possible that ERCs from larger communities may be asked to help these communities out during a local emergency.

Other Amateurs may be found at <http://www.callsign.ca>

Appendix B – Stations and Repeaters

PEP Stations

Callsign	Location	Airmail	Phone	Fax
VE7PEP	Provincial Emergency Coordination Centre & Vancouver Island Region Victoria	Direct: VE7PEP Internet: VE7PEP@winlink.org	250-952-5848	250-952-4304
VE7SW	Southwest Region Surrey	Direct: VE7SWS Internet: VE7SWS@winlink.org	604-586-4390	604-586-4334
VE7KAZ	Central Region Kamloops	Direct: VE7KAZ Internet: VE7KAZ@winlink.org	250-371-5240	250-371-5246
VE7NEZ	Southeast Region Nelson	Direct: VE7NEZ Internet: VE7NEZ@winlink.org	250-354-5904	250-354-6561
VE7PGZ	Northeast Region Prince George	Direct: VE7PGZ Internet: VE7PGZ@winlink.org	250-612-4172	250-612-4171
VE7NWZ	Northwest Region Terrace	Direct: VE7NWZ Internet: VE7NWZ@winlink.org	250-615-4813	250-615-4817

Station Managers

STATION	MANAGER(S)	CALL SIGN	EMAIL	PHONE
VE7PEP Victoria	Kevin Hartley	VE7OVY	ve7OVY@telus.net	250-592-8234 250-744-8234
VE7SW Surrey	James Longley	VE7JMS	ve7jms@gmail.com	604-591-6426 604-813-2154
	Onno Onneken	VA7OC		
VE7KAZ Kamloops	Ken McEachern	VE7EFL	ken.mceachern@lycos.com	250-372-5902 250-852-2152
VE7NEZ Nelson	Syd Jameson	VE7BOP	sjameson@xplornet.com	250-352-2356
VE7PGZ Prince George	Graig Pearen	VE7EAP	Graig@Pearen.ca	
	Frank VanderZande	VE7AV	frankvdz@telus.net	250-964-7082 250-961-1173
VE7NWZ	Allen Wootton	VE7BQO	AWootton@uniserve.com	250-635-7101
	Keith Gosse	VE7EKZ	KGosse@uniserve.com	250-635-5865
	Glenn Grieve	VE7CNQ	Glenn_Grieve@hotmail.com	250-635-4126

Key Northern Stations

“Key stations” with facilities that may enable them to operate when other stations are temporarily unable to do so:

VE7NWZ	Northwest PREOC station in Terrace with UPS and diesel back up
VE7PGZ	Northeast PREOC station in Prince George with UPS and diesel back up
VE7ZZZ	Rural private club station south of Prince George, completely self-contained
VE7EAP, VE7EOJ, VE7EAQ, VA7AOK	This rural station west of Prince George is "power failure proof"
VE7BQO	Portable VHF repeater, portable HF station
VE7CNQ	Portable HF station

Repeaters

CITY	RPTR	NTWK	FREQ	LINKS	BKUP	NOTES
Burns Lake	VE7RLD	*	146.94-	VRHF, HSTN	-	Boar Mountain
Haida Gwaii	VE7RQI	-	146.680-	UHF to Prince Rupert VE7RPR 146.880-	Solar Batt	Accessible from Prince Rupert from high ground
Hazelton	VE7RHD	*	146.80-	SMTR	Batt	Seeley Hill: Small battery
Houston	VE7RHN	*	147.06+	BULK, SMTR	Gen	Mt. Harry Davis
Huckleberry Mine		*	442.525+	Southbank to Burns Lake		
Fort St. James		*	147.24+			100Hz tone
		*	147.03+	PGRG	-	Murray Ridge
Fraser Lake		*	146.84-	PGRG		100Hz tone
Nation Lakes		*	147.33+	Ft. Fraser (Fraser Mtn)		
Prince George	VE7RPM	*	146.94-	QUES, VRHF, RES	Batt	Pilot Mountain. Link normally off
		*	147.30+	VE7RES	Bat	Carney Hill
	VE7FFF	-	146.70+	Autopatch, internet	Gen	Tabor Major (TELUS site)
	VE7RES	*	145.43-	Hub (all directions)	Batt	Tabor Minor
	VE7RWT	*	146.91-	VE7RES	Gen	Baldy Hughes (TELUS site) Covers Hwy 97 south
	VE7RUN	-	147.00+		Gen	Auto patch
	VE7DTM	-	146.72-		-	Bill's repeater
Smithers	VE7RBH	*	146.88-	HSTN, NZTN	Batt	End of Snake Road: Large battery
Southbank		*	146.76-	Burns Lake		
Vanderhoof	VE7RSM	*	146.80-	PGRG, BULK	-	Sinkut Mountain
	VE7RON	-	146.88-	Auto patch (*=on #=off)	-	Down town

* Part of Central Interior VHF network

NTWK: Part of the Central Interior VHF network.

Note 1: Fort St John repeater equipment is all 12 vdc powered. Batteries can be transported to the site if required.

Note 2: Other repeater links from Prince George are available East, West, and South.

Repeater Control Codes

Vanderhoof 146.80- VE7RSM	5611 linked 5610 not linked
Burns Lake 146.72-	Everything on = 4111 West link: on = 4121, off = 4120 East link: on = 4331, off = 4130
Houston 147.06+ VE7RHN	Everything on = 8211 West link: on = 8221, off = 8220 East link: on = 8231, off = 8230
Smithers 146.88- VE7RBH	Everything on = 8011 West link: on = 8021, off = 8020 East link: on = 8031, off = 8030
Hazelton 146.94- VE7RHD	Everything on = 8311 West link: on = 8321, off = 8320 East link: on = 8331, off = 8330
Fort St. James 147.03+	5911 linked 5900 not linked
VE7RPM 146.94- Prince George	5110 All links on, drop repeater disconnected (normal configuration) 5111 All on
VE7RES 145.43- Prince George	Main hub. All links always on unless there is an equipment failure.
VE7RSM 146.80- Vanderhoof	561* repeater linked 560* not linked

Portable Kits

VE7POC	Surrey
VE7VIZ	Kamloops
VE7POB	Prince George

Appendix C – PEP Frequency Plan

PACTOR

CENTER FREQUENCY (This is the frequency you need to type into the frequency window in the HF terminal)	DIAL FREQUENCY (tune the radio to this frequency – this is the frequency that the TNC should display on your radio)
3.5915 MHz, USB	3.5900 MHz, USB
3.6150 MHz, USB	3.6135 MHz, USB (This is the frequency VE7PEP is listening on)
3.6915 MHz, USB	3.6900 MHz, USB
7.0910 MHz, USB	7.0895 MHz, USB

PRIMARY – NIGHT TIME	
3.6150 MHz, USB	3.6135 MHz, USB

PRIMARY – DAY TIME	
7.0910 MHz, USB	7.0895 MHz, USB

HF Voice Communications – PREOCs & PECC

	Primary	Secondary
160 meter band (PREOC optional)	- 1.900 MHz, LSB	- 1.910 MHz, LSB
80 meter band	- 3.735 MHz, LSB	- 3.745 MHz, LSB
40 meter band	- 7.060 MHz, LSB	- 7.070 MHz, LSB
15 meter band	- 21.120 MHz, USB	- 21.130 MHz, USB
10 meter band	- 28.420 MHz, USB	- 21.430 MHz, USB

Appendix D – Airmail

Overview

There are six Provincial Radio Emergency Operations Centres (PREOCs) in BC. VE7PEP doubles as the main station for the Provincial Emergency Coordination Centre (PECC). Each PREOC has an HF Airmail station, as do the three portable stations. The Lower Mainland/Vancouver Island also has Airmail on linked VHF networks.

The Airmail system is used because accuracy is guaranteed and because it can get a message sent during radio conditions that might otherwise defeat any other mode. The underlying PACTOR system is self-correcting, so when either sending or receiving a message, the two transceivers will be "talking" to each other. Furthermore, the PACTOR mode is said to be able to extract a signal that is 10 dB below the level of background noise.

Each PREOC and the PECC can be Airmailed a message directly via HF, and can also be reached by sending an HF Airmail message as regular email (e.g. VE7NWX@winlink.org) through a "Gateway" amateur station (listed below). There is only one gateway in BC – VE7RAH, located at Dockyard and run privately. Each gateway may be automatically listening on a number of frequencies (listed below) if their equipment is turned on. Try one of the others, such as W7IJ or VE6DXI, if you cannot connect to VE7RAH. Messages can be sent to any conventional email address using this method.

If a message is sent directly to a PREOC station, the message will wait in the destination computer until an operator reads it. This assumes the destination station is ON (Airmail is running, TNC is on, and transceiver is set to the same frequency), and that the propagation conditions are reasonable. When a message is sent directly, the "Post Via" box should have the other station's callsign (e.g. VE7KAZ).

Be aware that propagation conditions may prevent connection and that some stations may be turned off. Be prepared to try a few different frequencies and stations. Also, be aware that this is a very slow mode compared to regular email, so keep messages and attachments very short. Because of this limitation, the Radiogram form should not be sent. Instead, use the text file version to create and send the message via Airmail as these files are much smaller.

Gateway Stations

Frequencies listed are Centre Frequencies – the transceiver's display should show the frequency to be 1.5 kHz lower. This is only a small selection of the PMBOs (gateways) available worldwide.

Primary Gateway Station		
VE7RAH	CFB Esquimalt, Victoria	D 3591.5, 3615.0, 3691.5, 7091.0
Other Gateway Stations		
VE6DXI	Edmonton AB	3591.5, 3615.0, 3691.5, 7091.0
W7IJ	Olympia WA	B14069.4, B14110.0#, LW 3591.0, LW 3591.0#, 7068.9, 7103.7#
W7BO	Portland OR	D7067.9, D 7071.9, D 7101.2#
W6IM	San Diego CA	D 7073.9, B135 dgs - 14073.9, B135 dgs - 14098.7#
WX4J	Jacksonville FL	Stn-1: D3593.0, D3593.0#, 7066.9 Stn-2: D14066.9#
VO1CRC	St. Johns NL	D3568.0, D3568.0#, D3696.5, D3696.5#, 7098.5, 7098.5#, 14110.0, 14110.0#
VE1YZ	Halifax NS	D3565.0, D3565.0#, D3631.9, D 3631.9# , D7096.5, 7096.5#, 14114.0, 14114.0#

D = the gateway station has a dipole antenna on that band

B = the gateway station has a beam antenna on that band

B = the gateway station has a Long Wire antenna on that band

= the gateway station has Pactor III capability

For a list of Winlink2000 stations, frequencies and capabilities, and current status go to www.winlink.org/RMSpactorStatus. Current propagation conditions are summarized at www.ips.gov.au/HF_Systems/6/6/1.

Instructions for messages via HF

Using Airmail 3 to create and send a new message via HF directly (no internet involved) requires the destination station be ON with its Airmail program, HF radio and TNC running. Propagation conditions must also be favourable. The error checking inherent in the PACTOR system used by Airmail makes this the method of communication preferred by PEP.

1. Check to ensure the computer is on, with AIRMAIL and the TNC running. If not, turn on the HF radio and the TNC (SCS-Pactor-IIEX), then turn on the computer and double-click on the Airmail icon.
2. In Airmail, click on "File" then "New".
3. Type the message in the space provided.
4. Add the ADDRESS info:
 - a. In the "TO" field, type in the callsign of the other station.
 - b. In the "Post Via" field on the right, type in the same callsign again.
5. Post this message so that it is ready to be sent by clicking on the icon that looks like a mailbox in the Airmail window near the top.
6. The message will be placed at the top of a list of older messages. Click on it once so that it is selected (appears highlighted).
7. In the main menu, click on "Modules" and then "HF Terminal". Another window comes up that will show what's happening.
8. In the "TO" field, once again type in the callsign of the other station.
9. To the right of that field put in a frequency, in kHz. This is called the "Dial" frequency. Because of the way PACTOR works, if you set this dial frequency at 3615 kHz, the TNC will place the transceiver onto 3613.5 kHz. The standard dial frequency that VE7PEP is listening for is 3615 kHz. Any frequency will work, provided the other station is similarly set up on that frequency. For example, if you think the 80 m band might work best and your destination station might be listening there, you could type in 3691.5. In that case you would hear the TNC automatically change the frequency of the HF radio to 3690 to accommodate the sideband being used.
10. In the HF Terminal window's main menu, click on "Modes" and then "Pactor III" and also "Robust".

11. Turn up the AF on the transceiver to see if the frequency is clear. If so, actuate the automatic antenna tuner on the radio.
12. Send the message by clicking on the green circle at the left side of the HF Terminal window's main menu. At this point you should see the text in that terminal window scrolling as it is sent. Eventually, either it will send it successfully or not:
 - a. If it shows that it has done so, then "disconnect".
 - b. If not, either hang (stop doing anything) or "disconnect". Close the HF Terminal window and try a new station, gateway station, new frequency, or all three.
13. To be sure the message was sent, look in the Airmail window and click on the Outbox. Your message should have a green arrow to its left to indicate success.
14. Now check if there are any messages waiting for you:
 - a. Go into the Inbox and look for "New", with a flame around it.

Instructions for messages via email (Internet)


You can send an email message to any other email address on the internet, including the other PREOCs by connecting to one of the capable "Gateway" Amateur stations worldwide.

Using Airmail 3 to create and send a new message via email requires the destination station be ON with its Airmail program, HF radio and TNC running. Propagation conditions must also be favourable.


1. Check to ensure the computer is on, with AIRMAIL and the TNC running. If not, turn on the HF radio and the TNC (SCS-Pactor-IIEX), then turn on the computer and double-click on the Airmail icon.
2. In Airmail, click on "File" then "New".
3. Type in the message in the space provided.
4. Add the ADDRESS info:
 - a. In the "TO" field, type in the destination email address (e.g. newsworld@cbc.ca)/
 - b. In the "Post Via" field on the right, type in WL2K.
 - c. In the "Email Gate" field, type in the callsign of the gateway station (e.g. VE7RAH or W7IJ – see list of gateway stations).

5. Post the message so that it is ready to be sent by clicking on the icon that looks like a mailbox in the Airmail window near the top.
6. The message will be placed at the top of a list of older messages. If it isn't already selected, click on it once so that it is.
7. In the main menu, click on "Module" and then "HF Terminal". Another window comes up that will show what's happening.
8. In the "TO" field, type in the callsign of a "gateway" station, such as VE7RAH in Esquimalt.
9. To the right of that field put in a frequency in kHz. You should hear the TNC automatically change the frequency of your HF radio so that it reads 1.5 kHz below this number. This allows the PACTOR system to work using a sideband mode.
10. In the HF Terminal window's main menu, click on "Modes" and then "Pactor III" and also "Robust...", that is, if the receiving station has the capability to run Pactor III.
11. Send the message by clicking on the green circle at the left side of the HF Terminal window's main menu. At this point you should see the text in that terminal window scrolling as it is sent. Eventually, either it will send it successfully or not:
 - a. If it shows that it has done so, then "disconnect".
 - b. If not, either hang (stop doing anything) or "disconnect". Close the HF Terminal window and try a new station, gateway station, new frequency, or all three.
12. To be sure the message was sent, look in the Airmail window and click on the Outbox. Your message should have a green arrow to its left to indicate success.

Appendix E – Forms



RADIOGRAM



NUMBER	PRECEDENCE	HX	STATION OF ORIGIN	CHECK	PLACE OF ORIGIN	TIME FILED (L)	DATE (L)
	<input type="checkbox"/> EMERGENCY <input type="checkbox"/> Priority <input type="checkbox"/> Routine <input type="checkbox"/> Welfare Command/Operations to Complete						

To:

Name _____

Position _____

Organization _____

Originator/Recipient

Radio Communications Unit

Documentation Unit

Contact Number: () - _____

	1	2	3	4	5
1	_____	_____	_____	_____	_____
2	_____	_____	_____	_____	_____
3	_____	_____	_____	_____	_____
4	_____	_____	_____	_____	_____
5	_____	_____	_____	_____	_____

↑ Enter only ONE word per line ↑

Originator:

Name

Position

Organization

Contact Number: () - _____

Initials

Command/Operations Approval to Transmit

Received	Received From	Time (Local)	Date (Local)
	Operator	Freq (MHz)	Method
Sent	Sent To	Time (Local)	Date (Local)
	Operator	Freq (MHz)	Method

EOC 412 / PREOC 712 / PECC 812

Initials

 Command/Operations Approval to Transmit

GREYED AREAS
 To be Completed by Radio Operator

Received	Received From	Time (Local)	Date (Local)
	Operator	Freq (MHz)	Method
Sent	Sent To	Time (Local)	Date (Local)
	Operator	Freq (MHz)	Method

EOC 412 / PREOC 712 / PECC 812

Radio Station Log

Station _____ Site _____ Day _____ Date _____ Task _____ Page ____ of ____
(call sign) (yy mm dd)

Msg #	Time	Freq.	From	To	Summary of Text	Oper
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
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23						
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25						
26						
27						
28						
29						
30						

Notes:

Operator _____ Signature _____

Appendix F – Glossary

Airmail: A computer program that allows Amateur radio stations to communicate relatively reliably using digitized packets of text. One of its features is very robust error checking, so that the message received can be relied upon as accurate. Airmail is the preferred method of communication between the PREOC and PECC. Each PREOC has this software and associated equipment.

EOC: *Emergency Operations Centre.* The generic term for the centre from which emergency management functions are performed, and may consist of conference rooms, radio station, rest area, etc. The EOC may be permanent or a pre-defined facility that can be quickly set up in an emergency.

ERC: *Emergency Radio Communicator.*

ESS: *Emergency Social Services.*

Formal Message: A written message preferably in the standard format.

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

NWE: *Northwest Region, Provincial Emergency Program.*

PECC: *Provincial Emergency Coordination Centre.* The EOC in the Provincial Emergency Program headquarters building in Victoria.

PEP: *Provincial Emergency Program.* A provincial government organization which supports local authority emergency preparedness and volunteer groups such as Amateur Radio, Search and Rescue (SAR), and Emergency Social Services (ESS). Note that by provincial statute, emergency preparedness is a **local authority** responsibility.

PERAC: *Provincial Emergency Radio Advisory Committee.* A committee sponsored by PEP that provides recommendations and support on both commercial and Amateur radio issues to

PEP and other volunteer groups. This group spearheaded the formation of PERCS and owns the PERCS logo.

PREOC: *Provincial Regional Emergency Operations Centre.* The PREOC in Terrace is a permanent facility located at the PEP regional office.

PERCS: *Provincial Emergency Radio Communications Service.* A joint venture between Radio Amateurs of Canada, the PERAC, ARES, and all the HF and VHF nets in British Columbia. PERCS was officially formed on April 30, 2000. www.percs.bc.ca.

RERR: *Regional Emergency Radio Representative.*

SAR: *Search & Rescue.*

Tactical Message: These messages are radio or telephone conversations between two people. A verbal message is not recorded in the incoming or outgoing message register but should be recorded in the station log that is maintained by the radio operator.

Appendix G – Personal Preparedness

As ERCs, 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 during blackout conditions – plan for no power, natural gas, telephone or community services for a minimum of 7 days. Pay particular attention to heat, food, and water and human waste disposal. Camping equipment may be suitable for some items. After you have done this, prepare the equipment and supplies that you will need to be part of the radio communications team for your community.

In addition to the standard emergency kit, the ERC 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, and 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 in an old suitcase, bag, or backpack ready to grab & run.

Appendix H – Technical Notes: Batteries

Battery Charging

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

Battery Selection

When selecting a battery 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 other lead-acid battery types but they will have a much longer life span and are not damaged by a deep discharge. A starting battery, even a 'cat battery' is designed for high current, shallow cycle service and should not 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.