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PROVINCIAL EMERGENCY **RADIO** COMMUNICATIONS SERVICE

PROVINCIAL EMERGENCY RADIO COMMUNICATIONS SERVICE (PERCS)

SAFETY PROGRAM GUIDE

Contents

Acknowledgements

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SECTION 1 – PURPOSE, SCOPE AND GENERAL REQUIREMENTS

The purpose of the Safety Program is to support the safety of all Provincial Emergency Program (PEP) Provincial Emergency Radio Communications Service (PERCS) members and contribute to the safety of other persons on scene.

This Safety Program Guide has been developed to help local authorities meet the requirements of PEP's Public Safety Lifeline (PSL) Volunteer Safety Policy, a copy of which is available at the PEP website: www.pep.bc.ca

This Guide is intended for PERCS supervisors and for those with overall responsibility for ensuring the safe operation of the PERCS program in their community.

The Safety Program Guide covers the safety of PERCS members while participating in PEP authorized activities involving preparing for and responding to a disaster or an emergency, including training.

How to Use this Guide

The Guide can be customized to meet the needs of PERCS operations. The contents in this document provide a good start to assist PERCS supervisors in establishing safe operations and training programs and developing safe work practices for their members.

While the Safety Program Guide may meet all your needs, we suggest reviewing Guide content as follows:

Step 1 Review the Safety Program Checklist in Appendix B
- Does existing PERCS safety program and procedures align with the suggested Safety Program content in this Guide?

Step 2 If yes, no further work is required.

Step 3 If no
- Use or customize content in this Guide to meet local needs

- update/add missing content to your safety program/procedures using the suggested Component content and checklists and other tools in the Appendices

Program Components

Guide Components are intended to help PERCS supervisors and local authorities develop and undertake safe emergency radio operations and during training. Local authorities are encouraged to use the Guide to develop and/or improve their own safety program, especially as it relates to the safety of PERCS members or other PSL volunteers.

Components in this Guide do not contain detailed 'how-to's. "How to" descriptions should be placed in operations manuals, training material/manuals and individual job task descriptions.

Responsibilities

All PERCS supervisors should be familiar with the PERCS safety program, as implemented within their local jurisdiction. They are responsible for understanding each Component and how they relate to each other, how they fit into PERCS training, exercising and response framework.

PERCS supervisors should seek clarification on the implementation or application of the Safety Program Guide from the PEP Regional office.

Safety Program Revisions

Suggestions for improvements to this general Safety Program Guide are also encouraged and should be made through the PEP Regional office. In that way, suggested improvements can be passed on to all PERCS operations throughout the Province.

SECTION 2 – SAFETY PROGRAM COMPONENTS

The following components will be common to the PERCS safety program, based on the working environment(s) and operating requirements typically encountered.

Component 1 – Key Responsibilities

Responsibilities of PERCS supervisors (Emergency Radio Coordinators (ERC), Deputy Emergency Radio Coordinator (DERC) or designate, Station Managers)

- take all reasonable and practical steps to ensure the safety of members
- develop and implement safe work practices & ensure all members attend required safety training courses
- assign members to activities that are consistent with their knowledge, skills, ability
- remove any member from activities if the supervisor has concerns as to the member's ability to safely perform their duties
- make sure appropriate emergency medical response services are provided or available to members
- make sure hazards are identified and proper steps are taken to control the risks
- report and investigate incidents, including accidents
- ensure regular inspection of the worksite and correction of unsafe conditions
- instruct and coach members to follow safe work procedures
- ensure only authorized, trained members operate equipment
- ensure equipment is properly maintained
- ensure necessary personal protective equipment (PPE) is provided to members and that PPE is used and maintained properly
- ensure the safe handling, storage and disposal of hazardous materials

- promote safety and worker care awareness

- co-operate with other parties in dealing with safety and worker care issues

Responsibilities of PERCS members

- follow safe work practices and procedures when training, exercising and responding to call outs

- advise their supervisor if they believe that their assigned activities cannot be safely performed

- immediately report all incidents of unsafe situations, hazards, accidents and injury to a supervisor

- participate in training and orientation activities required to safely undertake assigned roles and responsibilities

- provide records of completed training and certification to their PERCS supervisor and/or PEP staff upon request

- cooperate with PERCS supervisors and fellow members on matters related to safety

Component 2 – Risk Assessments

Risk assessment is an important component of the PERCS Safety Program. It is a way of determining what needs to be done to prevent injury or disease once hazards have been identified. Risk assessment begins with a careful examination of worksites and anticipated situations for hazards that could cause harm to members and others. Hazards are identified so procedures and practices can be implemented to prevent harm.

Each PERCS Supervisor will ensure risk assessments are conducted.

Who should conduct/be involved in a Risk Assessment?

The Risk Assessment should be conducted by persons who are:
- Experienced in the activities being assessed

- Familiar with the risk assessment method

- Able/trained to use an objective approach

Conducting a Risk Assessment

For PERCS operations, risk assessments should be approached in two main ways:

1. A general program risk assessment – conducted as a 'desktop' review of risks associated with typical day to day operations

2. Remote Communications (on-scene) risk assessment - conducted when a PERCS remote communications team arrives on scene (eg: at a Reception Centre) and a quick assessment of the situation and surroundings is required prior to initiating radio operations

General risk assessment

While there are many different approaches to conducting risk assessments, all have common steps in common. Appendix C describes a suggested approach that works for many different types of workplaces. Additional sources of risk assessments may also be available from other emergency response organizations with similar roles.

Remote/On-scene Risk Assessments

Prior to and upon arrival on scene, it is important to perform a situation evaluation that includes a risk assessment. This assessment will include the following:

- Initial information on emergency situation at call out, including:
    - location of on-scene site
    - Road location and conditions
    - Weather conditions
    - Special information-hazardous substances on scene, etc.

- At scene situation assessment including:
    - Confirm/amend initial information
    - Assess risks depending on nature of physical site (e.g. downed trees, power lines, etc.)
    - Identify and interacting with other emergency radio operators at scene
    - Traffic flows and controls
    - Safe places to set up communications unit/Deployable Radio Kit

Component 3 – Written Safe Work Procedures

Where required by the hazards of the job, each PERCS supervisor will ensure there are appropriate written safe work procedures for the safe performance of the member's work. This includes the proper operation of radio transmitting equipment, ensuring proper fall protection is followed when working on or around antennas, or any work process or operation that could create a hazard to the member (or others) if proper procedures are not followed.

Each supervisor should ensure that written work procedures are developed and implemented for anticipated emergency response events and for authorized training or exercise sessions.

Site- or event-specific written work procedures should:
- Describe the steps required to safely carry out the job, task or procedure
- Prescribe the protective measures to safely guard against hazards

Written work procedures should be developed with input from experienced radio operators who are experienced in performing similar tasks. Written work procedures should be reviewed regularly and, whenever a changed or new task/assignment occurs.

Safe work procedures should be provided to each member, related to the tasks they are performing.

Task-specific work procedures should also be reviewed by the member after an extended period of member inactivity and before the member is assigned to active duty.

Appendix D – shows typical Radio Communication Safety Checklist

Appendix E – PERCS Safety Practice

Appendix F – Safe Work Procedures Checklist

Appendix G – Fall Protection: Working On or Around Antennas/Towers

Component 4 – Education and Training

For prevention of accidents, injuries and resulting compensation claims, it is vital to provide members with appropriate education and training. Supervisors will ensure that all new members receive **orientation** on safety policies and safe work procedures/practices, including a check on proficiency and skill/knowledge evaluation.

In addition, specific training will be provided to ensure each member knows and understands safe work procedures/practices for their worksite and their assigned duties.

It is each supervisor's responsibility to ensure that members are able to demonstrate that she/he can work safely, including the operation of machinery or equipment.

Supervisors should ensure that new members and all members who are being assigned potentially hazardous tasks for the first time have been adequately trained.

Each member should be aware of potential hazards and be able to demonstrate they are able to perform the work assigned to them in a safe and proper manner.

Education and training for members should include these activities:

- Orientation/induction
- Verification of pre-existing training and qualifications
- On the job training
- Exercises
- Proficiency and skill/knowledge evaluation and follow up
- Hazard recognition
- Worker Care information and awareness

Component 5 – Incident Reporting and Investigation

ERC's need to ensure all hazards and incidents are reported quickly and investigated. This is important for a number of reasons.

- Operationally, and for responder and public safety, to ensure any immediate unsafe conditions are corrected

- Quick response ensures that any injured radio operator receives first aid or further medical treatment

- Investigations:

  o Identify the underlying causes of the accident/incident

  o Identify actions to correct unsafe work conditions to prevent recurrence

- Effective response, investigation and follow up offer opportunities to improve future operational effectiveness

Hazard – A hazard is the potential for harm or injury/occupational disease.

Incident – An accident or other occurrence which resulted in or had the potential for causing an injury or occupational disease.

What must be reported?

Whenever any radio operator observes a situation or condition that may pose potential injury to the radio operator, they must report it as soon as possible to a supervisor. The supervisor or other designated person receiving the report must investigate the reported hazard and must ensure that any necessary corrective action is taken immediately.

A **serious injury or death** of a radio operator must be reported to WorkSafeBC immediately (604-276-3301 in the Lower Mainland or toll-free 1-888-621-7233) and to the police force having jurisdiction. The PEP Emergency Coordination Centre (ECC) (1-800-663-3456) must then also be informed immediately and the appropriate Regional Manager and staff will provide support. A serious injury is any injury that can reasonably be expected at the time of the incident to endanger life or cause permanent injury.

The following must be reported directly to PEP promptly (same shift as occurrence), so that PEP can report the injury as required to WorkSafeBC within 72 hours of the incident occurring (including injuries sustained on an approved training task):

- The radio operator loses consciousness following the injury

- The radio operator is transported or directed by a first aid attendant or other authorized person(s) to a hospital or other place of medical treatment, or is recommended by such persons to go to such place

- The injury is one that obviously requires medical treatment

- The radio operator has received medical treatment for the injury

- The radio operator is unable or claims to be unable by reason of the injury to return to his or her assigned function on any working day subsequent to the day of injury

- The injury or accident resulted or is claimed to have resulted in the breakage of an artificial member, eyeglasses, dentures or a hearing aid

- The radio operator or WorkSafeBC has requested that an employer's report be sent

'First aid only' injuries (not involving any further medical treatment or time loss) need not be reported but should be recorded by the First Aid attendant in a First Aid record book.

What must be investigated?

The ERC must ensure an investigation following any report of injury or near miss incidents or accidents involving radio operators. If the injury is minor (but medical assistance beyond first aid was required), the investigation will entail an ERC or other designated person interviewing the injured radio operator and witnesses that were present when the incident occurred. Immediate preventive action will be taken if the potential for further injury exists.

An incident investigation and resulting report must be in writing. Appendix G – Accident/Incident Investigation Report Form is an example of a report suitable for most incident investigations.

If a **serious injury or death** of a radio operator has occurred, or if a near miss could have resulted in a serious injury or death, a more formal investigation is required. If the incident occurs during response, the investigation is to be conducted with the agency of jurisdiction (with the overall responsibility for the response) and a PEP representative. There may also be requirements under other legislation requiring involvement of safety boards, police or other agencies, and WorkSafeBC.

ERC's must maintain records and statistics on all job related accidents, injuries, investigations, illnesses or deaths. Records should contain the nature, frequency and severity of any incident as well as any suspected exposure to toxic products or contagious diseases.

See also:

PEP Policy 5.13 – Workers' Compensation Board Claims

Component 6 – Medical Response/First Aid

Each ERC needs to ensure that appropriate medical response/first aid services are available to radio operators for each authorized PEP task.

Each radio operator needs to be advised about how to obtain first aid.

Treatment and transportation of any injured radio operator is the primary objective of any response to an injury.

A record of first aid provided to a volunteer must be kept by the ERC. Typically this is the first aid report/record completed by the first aid attendant. Note: First Aid records are confidential and must be kept in a secure location by the ERC. First Aid records are not to be disclosed except where required by an investigation or by WorkSafeBC or another authorized regulatory body.

Any radio operator who is injured is required to report the injury immediately to their supervisor. If not the radio operator, the person providing first aid must report the injury to the supervisor

Component 7 – Inspections

Inspections will depend on the nature of the situation/task, but may include some or all of the following:
- the building or other structure being used by members

- immediate surroundings where members may work or pass through

- antennas, power supplies

- work methods and practices

- mobile equipment/vehicles

Informal inspections should be conducted by supervisors as they tour the work site, or are giving work instructions to members. They should also conducted by members when they enter/arrive at worksite for the first time.

Inspections of tools and equipment will be conducted at intervals according to manufacturer's recommendations. This will normally be performed by the designated operator of the equipment unless otherwise arranged by the local worksite supervisor.

Copies of completed inspection checklists will be forwarded to the Supervisor to ensure that any required follow-up has been completed.

Any hazard or unsafe condition found during inspections will be rectified as soon as is possible. If an unsafe condition cannot be immediately rectified the work area will be flagged/closed or work process will be stopped until member safety is assured.

Records of inspections should be kept for a period of one year.

Only qualified and properly instructed persons are permitted to correct a condition that constitutes an immediate threat to members. Every possible effort is made to control the hazard while this is being done.

The A, B, C hazard-rating method or equivalent should be used to rate items observed during a safety inspection. The reason for this system is to highlight the degree of severity of those hazards, which will assist the organization to prioritize corrective action.

Hazards are rated as follows:

"A" CRITICAL
- Serious problems or one with a high probability of occurring. (Activity to be discontinued until hazard is corrected).

"B" URGENT
- Less serious problems or one with a moderate probability of occurring. *(As a general rule, the time frame for correction should never exceed 2 weeks).*

"C" IMPORTANT
- Smaller problems, with a low probability of occurring. *(As a general rule, the time frame for correction should not exceed 4 weeks).*

Component 8 – Records

PERCS recognizes the importance of maintaining complete and accurate safety records, including training and exercise records. These records document compliance with the Safety Policy and Program and are useful in identifying trends, unusual conditions and problem areas.

Records can be used as a source of reference for, inspections, investigations and training. They may be referred to during program evaluations to monitor effectiveness and compliance with the Public Safety Lifeline Volunteer Safety Policy or this Safety Program.

Safety records will be made available to PEP upon request.

Records to be maintained include:

- ERP and RF Fields Exposure Calculations from roof-top antennas and/or operating positions

- RF Exposure calculations & drawings pertaining to the Deployable Radio Kits

- Training records

- Exercise records

- Incident records

- Vehicle/Equipment Maintenance records

- First Aid records

Additional information on records is provided in Appendix I

Component 9 – Management Meetings

Safety should appear on the agenda of PERCs meetings. The agenda item may be brief, but does give an opportunity for members to review/discuss safety issues, including:

- Reviews of accident/injury that have occurred

- Results of inspection reports, investigations and related follow-up action reports

- First aid incidents/issues

- Education, exercising and training needs;

Items of broad concern or impact to PERCS's are to be brought forward to PEP with recommendations for corrective action should they be required.

Component 10 – Safety Program Review

Reviewing the effectiveness of the safety program is an ongoing process. There are a number of opportunities to do this during PERCS operations.

- **Operational** debriefings-after each incident. Often informal and should include any safety issues that arose during the incident.

- **Management** operational meetings (monthly/bimonthly or other intervals)-identify/discuss emerging safety issues. (Refer to Component 9 above)

The PERCS should ensure that a systematic and critical examination of the Safety Program is carried out at least annually.

Benefits of conducting a review:

- Encourages and provides for development of a comprehensive Safety Program

- Reveals program deficiencies and identifies action to correct those deficiencies

- Provides a basis for recognition of Program and member achievements and focuses on positive efforts not just remedial action

Information for the program review can be obtained from a number of different sources:

- Documents: copies of relevant policies, procedures, training and exercise records, reporting and monitoring information, investigations and inspection reports, previous recommendations, etc.

- Discussions/interviews with members

- Observations by the persons involved in the review

Component 11 – Other Program Components

11.1 Strain Injury Prevention (Ergonomics)

Increasingly, work-related injuries are due to lifting, over-reaching or putting unaccustomed demands on the body. The demands if high enough can put a strain in the body, causing musculoskeletal injuries (MSI). Or, more simply, strain injuries. PERCS's should take steps to identify the potential sources or risk factors for strain injuries and identify ways to prevent or minimize them. An effective strain injury (Ergonomics) prevention program will include:

- Understanding strain injury hazards, causes and symptoms in relation to radio operations

- Know how to identify and assess the risks associated with radio operations and how take prevention measures

- Providing PERCS members with training on safe work practices to prevent or minimize strain injuries from occurring, including recognition of the symptoms of MSI.

In emergency radio communications effective strain injury prevention is often dependent on use of the proper equipment for the job, following safe work methods (through training and exercising) and having safe work practices (clear work procedures). Prevention is also about minimizing the effects of work environments (heat and cold) and, ensuring good physical conditioning.

Supervisors should consider the following, both to understand and prevent strain injuries, and also other associated hazards related to emergency radio communications work:

1. Demanding work in emergency circumstances

    - The risk of work accidents in rescue work has been found to be mainly due to the use of heavy machines and equipment, dangerous and restricted work situations, extreme heat stress and quickly changing ambient temperatures.

Solutions:

- Good working skills and techniques, in addition to better-than-average physical and mental work capacity will protect members from accidents. Skilled performance can be repeated easily and safely even in changing and exceptional conditions;

- The right equipment for the job to reduce physical demands and possible harm.

2. Physical work capacity and health

- Despite improvements in working skills, methods and equipment, rescue worker competence and safety depend to a large extent on their physical capacity to meet the demands of the job.

Solutions:

- Conditioning standards

- Health awareness education (including back awareness)

- Training and exercises

Additional Information:

WorkSafeBC has a helpful publication "Understanding the Risks of Musculoskeletal Injury (MSI)".

11.2 Exposure to RF Fields, Hazardous Materials/Biohazardous Substances

Radio Operator deployment locations may contain the risk of exposure to Radio Frequency Electromagnetic Fields and other hazardous materials/substances. An effective program for managing radiation and/or hazardous materials/substances should include:

Exposure to RF Fields

- procedures for managing and reporting exposure of PERCS members to RF fields

  o Instructions and procedures for repair, maintenance and operation of a device, as specified by the manufacturer or a competent person, are to made readily available to, and be followed by PERCS members

  o Records are to be kept of all RF survey measurements and their evaluation

References

- Health Canada: Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency Range from 3 KHZ to 300 GHZ - Safety Code 6

- Industry Canada: RSS-102 Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)

- Industry Canada: GL-01 - Guidelines for the Measurement of Radio Frequency Fields at Frequencies from 3 kHz to 300 GHz

- Industry Canada: GL-02 - Guidelines for the Protection of the General Public in Compliance with Safety Code 6

Other Hazardous Materials/substances

PERCS operations might also include exposure to a substances/material that, when released during an incident, could pose a hazard to victims and responders. An effective program for managing hazardous substances/materials will include the following key activities:

- Methods used or required to contain, confine, or divert hazardous substances/materials in order to conduct radio operations safely (including exposure to generator exhausts)

- Procedures for working with other responders (Fire, HazMat Specialists, etc.)

- Procedures and equipment used to protect PERCS members from effects of hazardous materials/substances

- Procedures for the use and the limitations of PPE (e.g.: goggles, gloves)

- Procedures for prevention of exposure to biohazardous substances, such as bloodborne pathogens (e.g.: use of universal precautions)

- Procedures for obtaining medical care in the event of an exposure

Additional information and resources for radio operators is available from Transport Canada, [Emergency Response Guide (ERGO)](#).

11.3 Prevention of Violence to Members

The risk of violence for radio operations, while rare may be associated with:

- Angry evacuees or bystanders/on-lookers
- Risks from persons who may prey on vulnerable people and property

The first priority is member safety. Some situations may require the assistance of by police or other trained personnel.

PERCS supervisors should determine the risk of violence by reviewing past incidents and discussing the potential for violence with PERCS members. Preventive measures need to be established to eliminate or reduce these risks. Prevention measures may include:

- How to deal with angry or upset persons
- Measures to seek assistance, including contacting police

11.4 Heat and Cold Stress

Radio operators often operate in varying work environments, during all seasons and types of weather. It is important to identify situations that may pose a risk to radio operators during extremes of heat or cold. Heat extremes may be related to weather conditions or to proximity to heat sources such as a fire. Risk of cold stress will usually be related to weather conditions.

Heat-related illness prevention

In outdoor environments, radio operators must rely on measures such as shielding (tent or other shelter to provide shade) or and/or appropriate clothing when the ambient temperature is high. PPE will be required before approaching heat sources, such as a vehicle fire.
The loss of fluids is a major contributor to heat illnesses, but thirst is not a reliable indicator of the body's need for fluids. A person can lose as many as 1.6 quarts of fluid per hour through sweating, so it's important to make sure radio operators drink plenty of liquids before, during, and after working in warm/hot environments. A general guide is drinking 8 ounces of fluids for every 20 to 30 minutes of work being performed.

Cold-related illness prevention

Exposure to cold can cause the body's internal temperature to drop to a dangerously low level. This is called hypothermia. Exposure to temperatures below freezing can cause frostbite of the hands, feet, and face. Hypothermia can also occur at temperatures above freezing. Cold, wet, windy conditions make for prime hypothermia weather.

Wet clothing draws heat very quickly away from the body. Whenever radio operators are away from shelter (tent, building or vehicle) they should carry/wear waterproof, windproof outer clothing.

Taking frequent breaks is also an important way to minimize risks from both heat and cold stress.

Recognize Signs and Symptoms

Radio operators need to be trained to recognize the signs and symptoms of both heat and cold stress.

Additional Information:

WorkSafeBC has two helpful publications, "Hypothermia: Surviving the Cold" and "Preventing Heat Stress at Work".

11.5 Personal Protective Equipment

PERCS members who respond to any incident or practice without appropriate personal protective equipment will be limited to duties they have suitable protective gear for, or will not be allowed to take part in the incident or practice, at the determination of the Team Lead.

SECTION 3 – WORKER CARE

It is important to inform, educate and support members in order to maximize their effectiveness as PERCS members while minimizing the risk of physical and emotional fatigue.
Appendix J contains helpful guidelines to support PERCS members

SECTION 4 – APPENDICES

Appendix A – Definitions and Acronyms

Definitions

*"*Hazard*"* means a thing or condition that may expose a person to a risk of injury or occupational disease.

"Incident" includes an accident or other occurrence which resulted in or had the potential for causing an injury or occupational disease."

"Supervisor" means a person with direction and control over PERCS members and other persons while preparing for or responding to a disaster or an emergency. This includes, but is not limited to; Emergency Radio Coordinators (ERC), Deputy Emergency Radio Coordinators (DERC) and Radio Station Managers..

"Member" means a PERCS volunteer, including a supervisor, registered by the Provincial Emergency Program for the purpose of preparing for (i.e. training or exercising) and responding to a disaster or an emergency.

> Note: A **"Convergent Volunteer"** is also considered a volunteer for the purposes of this Safety Program. A "convergent volunteer" means an individual that offers their service and/or expertise during a PSL activity and is signed in to the task (but is not a registered PSL volunteer)

 "Work" means all activities carried out by a member or while under a training or response task number.

Commonly Used Acronyms

CISM	Critical Incident Stress Management
ECC	Emergency Coordination Centre
ERC	Emergency Radio Coordinator
DERC	Deputy Emergency Radio Coordinator
PEP	Provincial Emergency Program
PERCS	Provincial Emergency Radio Communication Service
PPE	Personal Protective Equipment
PSL	Public Safety Lifeline

Appendix B – Safety Program Quick Assessment

Safety Program Guide Component	Assessment of Existing Safety Program			
	Component Content Complete	Requires Minor Edits/Additions	Needs Substantial Review/Edits	Not in Place/ Needs to be Added
Responsibilities Established and Communicated				
Risk Assessments Completed				
Safe Work Practices in Place				
Safety Education and Training Content in Place				
Training Undertaken where Required				
Incident Reporting and Investigation Procedures in Place				
First Aid/Medical Response Services for Volunteers in Place				
Regular Inspections Undertaken				
Safety Records Maintained				
Safety on Agenda of Team Meetings				
Safety Program Reviewed				
Other Components in Place based on Need (e.g. Strain Injury Prevention, etc.)				

Assessment Completed by:

Date:

Appendix C – Risk Assessments

5 STEPS TO EFFECTIVE RISK ASSESSMENTS

Introduction

This Guide provides a simple, 5 step method to identify, assess and eliminate or reduce the risks associated with workplace hazards. The Guide offers a practical and easy to follow risk assessment process. Effective risk assessment is about knowing your workplace, involving members and taking action to deal with hazards that are identified. In most cases hazards can be eliminated or reduced in simple, cost effective ways. Where problems are more complex, the 5 Step Program offers a way to prioritize, plan and implement solutions that make sense for your workplace.

What are the 5 Steps?

1   Collect Information

2   Identify Hazards

3   Assess the Risks

4   Eliminate or Reduce Risks

5   Document and Monitor your Risk Assessment Program

Step 1

Collecting Information

First you need to determine how PERCS members could be harmed. Here are some tips to help you identify possible hazards:

- **Walk around** your workplace and look at what could reasonably be expected to cause harm.
- **Ask members** what they think. They may have noticed things that are not immediately obvious to you.
- **Check manufacturers' instructions** or data sheets for chemicals and equipment as they can be very helpful in spelling out the hazards and putting them in their true perspective.
- Review your **incident and first aid records** – these often help to identify the less obvious hazards.
- **Talk to others.** What has been the experience of other radio operators. They may have experienced situations that you have not faced,

What information should I collect?

To assess risks at the workplace you need to know:

- where the workplace and/or the jobs performed are located (this is especially important for those involved in search and rescue roles-since incident sites could be anywhere, at any time)

- what work equipment, materials, and processes are used

- what tasks are performed (e. g., in what way and for how long they are performed)

- what hazards have already been identified, and what their sources are

- what the potential consequences of existing hazards are

- what protective measures are in place now

- what accidents, occupational diseases have been reported

- are there any specific legal requirements in Regulations

Where can I obtain this information?

You can get this information from the following sources

- technical data of the equipment, materials, or substances used at the workplace

- technical procedures and work manuals

- results of measurements of hazardous substances at the workplace

- records of inspections, accidents and occupational diseases

- specifications of the properties of chemical substances

- legal regulations and technical standards

- scientific and technical literature

Information can also be obtained by:

- observing the work environment

- observing the tasks performed during responses and during exercises/training

- interviewing members

- observing external factors (e. g., tasks performed by third parties, weather condition

Make sure you consider specific hazards that may be unique to your operations, including:

- Exposure to levels of radio frequency energy which exceed Government and Industry safe standards;

- Aircraft Operations

- Blood borne pathogens and hazardous materials/substances

- Cold and heat stress

- Noise

- Strain Injuries (Ergonomics)

- Rescue or evacuation of members

- Toxic gas processes
- Violence to PERCS members

Step 2

Determine Who May be Harmed and How

For each hazard you need to be clear about who might be harmed; it will help you identify the best way of managing the risk. Identify each unique job/role and how members in that role might be harmed, i.e. what type of injury or disease might occur. For example, setting up and operating a radio antenna which is located closer to yourself or other people than the standard recommended safe distance for the frequency, power level and antenna gain of the system.

Often, a checklist is the best way to collect and analyze this information. See Appendix 1 for a general risk assessment checklist.

Step 3

Assessing Risks

How can I assess the risk associated with a hazard?

For each identified hazard on your checklist(s) determine if the risk is **low, medium or high**, taking into account the probability (likelihood) of injury and the severity of the harm.   Use the table below to make your decision on the risk.

	Severity		
Probability	Low risk of injury	Medium risk of injury	High risk of injury
Highly improbable (low)			
Probable (medium)			
Very Probably (high)			

Probability

- Highly improbable: should not occur the entire time the member is performing this job
- Probable: may occur only a few times while the member is performing this job
- Highly probable: may occur repeatedly while doing this job

Severity

- Low severity: accidents and illnesses not causing prolonged injury (such as small nicks, eye irritations, headaches, etc.)

- Medium severity: accidents and illnesses causing moderate, but prolonged or periodically recurring injury/illness (such as wounds, simple fractures, second-degree burns on a limited body surface, dermal allergy, etc.)

- High severity: accidents and illnesses causing grave and permanent injury and/or death (e.g., amputations, loss of sight, complex fractures leading to disability, cancer, trauma, second- or third-degree burns on a large body surface, etc.)

How do I determine if the risk is acceptable or unacceptable?

Use your best judgment (and that of peers, specialists, etc.), but in general:

- a high risk is <u>unacceptable</u>

- a medium risk may be acceptable, but steps should be taken to lower the risk

- a low risk is generally acceptable

The higher the risk, the higher the priority to eliminate or minimize the risk.

Note as well: If legal requirements are not complied with, a risk is not acceptable!

If risk is high and assessed as unacceptable, actions to reduce it need to be taken <u>at once</u>.

If the risk is medium and assessed as acceptable, it is recommended you take actions to reduce the risk further according to a plan.

If the risk is low and assessed as acceptable, it is necessary to ensure that it will remain at the same level.

So first, look at what you're already doing; think about what controls you have in place and how the work is organized. Then compare this with good practice and see if there's more you should be doing to bring yourself up to standard. In asking yourself this, consider:

- Can I eliminate the hazard?

- If not, how can I control the risks so that harm is unlikely?

When controlling risks, apply the principles below, if possible in the following order:

1. **Eliminate or Substitute** – get rid of the substance, change the work location or the work process, the tools and equipment or, whatever is exposing the workers to risk. Substitute safe, or at the very least, less hazardous alternatives. So, before the job even starts, make it safe.

2. **Engineering Controls**- Sometimes the work itself cannot be changed but it may be possible to take steps to improve the work environment. For instance, it may be impossible due to local physical circumstances to operate a radio station outside of a possible strong RF field. Therefore steps should be taken to reduce transmitter power to the bare minimum required for reliable coms, or to keep transmissions short to reduce exposure time.

3. **Administrative Controls**-organize work to reduce exposure to the hazard, develop written safe work procedures, and provide appropriate education and training (e.g.

written procedures and education/training for manual lifting an injured person to reduce members exposure to musculoskeletal injuries)

4. **Personal Protective Equipment (PPE)-**If the above controls can't eliminate or reduce the hazard then issue personal protective equipment (e.g, tower fall-arrest gear, hard hats, etc), eye and ear protection, etc). PPE is not a substitute for elimination/substitution, engineering or administrative controls-always try these options first. PPE in combination with another control may also be a good risk reduction option. If the required PPE is not available then the member cannot be assigned the task until it is.

And, in all cases, provide 'first response' facilities (e.g. washing facilities for removal of contamination).

Remember: Risk assessments should always be carried out with the members' active involvement. When deciding on the acceptability of risk, bear in mind their input, and take into account the health and any other special circumstances of the members for whom the assessment is conducted.

Step 4

Eliminate or Reduce Risks

What can I do to eliminate or reduce risks from hazards?

You should do everything 'reasonably practicable' to protect members from harm. You can work this out for yourself, but the easiest way is to compare what you are doing with good practice. There are many sources of good practice – **for example provincial or national Emergency Response organizations.**

A Plan of Action

Use the **Risk Assessment Work Sheet** (Appendix 1) to record your risk assessment and identify and plan risk reduction activities.

Putting the results of your risk assessment into practice will make a difference when looking after members and emergency radio communications operations. Writing down the results of your risk assessment, and sharing them with all team members, encourages you to do this. When writing down your results, keep it simple.

A prevention plan need not be perfect, but it must be suitable and sufficient for your work operations. You should be able to show that:

- a proper assessment was made

- you identified who might be affected

- you dealt with all the significant hazards, taking into account the number of people who could be involved

- the precautions are reasonable, and the remaining risk is low

- you involved members in the development of the plan

If, like many organizations, you find that there are quite a lot of improvements that you could make, big and small, don't try to do everything at once. Make a plan of action to deal with the most important things first.

A good plan of action often includes a mixture of different things such as:

- a few inexpensive or easy improvements that can be done quickly, perhaps as a temporary solution until more reliable controls are in place;

- long-term solutions to those risks most likely to cause accidents or occupational disease;

- long-term solutions to those risks with the worst potential consequences;

- arrangements for training members on the main risks that remain and how they are to be controlled;

- the control measures stay in place; and

- clear responsibilities – who will lead on what action, and by when.

Remember, prioritize and tackle the most important things first. As you complete each action, tick it off your plan.

Step 5

Documenting and Monitoring

Regularly monitor your risk assessment plans and actions to ensure they are on track and on time.

Few workplaces stay the same. Sooner or later, you will bring in new equipment, substances and procedures or face new situations that could lead to new hazards. It makes sense, therefore, to review what you are doing on an ongoing basis. Every year or so formally review where you are, to make sure you are still improving, or at least not sliding back. Look at your risk assessment again. Have there been any changes? Are there improvements you still need to make? Have members spotted a problem? Have other groups experienced a situation and how did they deal with it? Have you learnt anything from accidents or near misses?

During the year, if there is a significant change, don't wait. Check your risk assessment and prevention actions plan and, where necessary, amend it. If possible, it is best to think about the risk assessment when you're planning any workplace changes – that way you leave yourself more flexibility.

Keep a record of all risk assessments, completed information collections and hazard identification checklist and action plans.

If planned actions and/or time frames require adjustment make sure the reasons for the adjustment is documented, plan amendments are discussed with affected members and amended action plans are implemented.

Appendix 1

Risk Assessment Worksheet

Workplace Name:

Workplace Location: **Date:**

Assessment Completed by:

_____

_____

No.	Hazard	Existing Preventive Measure, if any	Risk Assessment (probability/severity) HML	Action Planned to Reduce Risk

Appendix D – Radio Communication Safety Checklist

Building and operating a "ham" radio station is a perfectly safe pastime.

However, carelessness can lead to severe injury, burns or even death by electrocution. .

Antenna Safety – Look Up and Live!

- **Assume all overhead power lines are energized and dangerous. They are not covered!** This includes the service drop, which typically runs from the power pole to your home or shack;

- **Look for power lines** which can be hidden by trees and buildings;

- **Plan the work and work the plan.** Before you put up or take down an antenna, assess the job; discuss the project's activities with your helpers and agree on specific assignments. Ask yourself… "at any time can arms, legs, head, the antenna, wires or tools come in contact with power lines?";

- **Consult with the local authority/EOC Safety Officer** about antenna mounting locations. Review any local safety hazards, building access point, etc. prior to installing your radio antenna

- **Use a safety spotter.** Nobody can do the work alone and assess safety distances. A safety spotter's *only* job it to keep people and equipment safely away from power lines;

- **Remember the 10-foot rule.** Keep all equipment, tools, your antenna, guy wire and tower at least 10 feet away from power lines.

- **Never use metal ladders or long-handled metal tools** when working near power lines;

- **Make sure the antenna cannot be rotated into power lines.** Or that it cannot fall into a power line if the guywires fail and the tower falls;

- **Use non-conductive guys;**

- **Have a solid earth ground for your antenna and operating equipment.** This helps reduce the risk of electrical shock and also provides a low-impedance path to ground for stray RF;

- **Outdoor antennas should be grounded with an approved lighting arresting device. Local codes may apply;**

- **The radio should also be grounded to an earth ground to help protect both the radio and its user;**

- **Antenna mast, cable, and guy wires are all excellent conductors of electrical current;**

- **If the tower assembly starts to drop . . . get away from it and let it fall;**

- **DO NOT use hot water pipes or gas lines as a ground source;**

- **DO NOT place antennas where people or animals are likely to run into or encounter**

DON'T BE AFRAID TO ASK QUESTSION OR ASK FOR ASSISTANCE

Appendix E – PERCS Safety Practice

PERCS Good Safety Practice

- All PERCS members are responsible for their own safety and the safety of personnel working with them.

- All PERCS members are responsible for continuously identifying unsafe conditions and are required to report such conditions.

- If it looks Unsafe, "feels" unsafe, DON'T DO IT! Communicate it Up, Down, and Across.

- Any PERCS Member is expected to say NO to unsafe practices or conditions -
  Stop, Talk, and Decide.

- PERCS supervisors are responsible for accepting, and appropriately acting upon, all safety-related information to make the incident site safer.

- Communication of safety-related information within each PERCS is critical – and is Two-Way.

- PERCS supervisors must continually keep all personnel working for them well informed of changing conditions and safety matters.

- Supervisors WILL NOT allow unsafe practices.

- Safety assessment is CONTINUOUS and must be part of ***all*** ongoing decision-making.

Appendix F – Safe Work Procedures

General

- Procedures to conduct a size-up of existing and potential conditions

- Procedures for the identification of the resources necessary to conduct safe and effective operations

- Procedures for implementing the emergency response system for vehicle and/or machinery response incidents

- Procedures for implementing site control and scene management

- Recognition of general hazards associated with vehicle and/or machinery response incidents

- Procedures for the initiation of traffic control

Operations

- Procedures for making the work area safe

- Procedures for the mitigation and management of general and specific hazards (i.e., fires and explosions) associated with vehicle and/or machinery use (eg: generators, etc.)

- Procedures for the procurement and utilization of the resources necessary to conduct safe and effective radio communications or operations

- Procedures for use of all specialized equipment immediately available and in use by the organization, including

    - Portable Antenna Setup

    - Obtaining a Safe Power Supply

Appendix G – Fall Protection: Working On or Around Antennas/Towers

Safe work procedures should be followed whenever approaching or climbing radio towers/antennas. (Refer also to Appendix D)

In addition, fall protection must be used at anytime a radio operator is working above 10 feet (i.e. - ascending, descending or moving from point to point).

And, any time work is done above 25 feet, a written fall protection plan is also required.

What is fall protection?

In most cases involving towers, fall protection will involve a means of "**fall arrest**" designed to stop a person's fall before they hit the ground. ("fall restraint" another form of protection involves preventing a fall or preventing a person from an unguarded edge from which a fall could occur.)

Fall arrest equipment will include:

- either a safety belt or full body safety harness and,
- a lanyard, lifeline and any other connecting equipment individual to the worker that will,
- connect the worker to an anchor point.

Note: fall arrest equipment must meet appropriate standards. Guidance on standards is available from WorkSafeBC in their Fall Arrest Guidelines.

What's included in a fall protection plan?

- Who is authorized to provide fall protection/tower climbing/assembly training to certify radio communication volunteers doing that work,
- A description of the training (including frequency) provided to those working at height,
- The fall hazards expected in each work area,
- A description of the fall protection system and equipment that is to be used,
- Description on how to select, fit, use, disassemble and inspect the fall protection equipment,
- Description of provisions for rescue of an operator who has fallen and is suspended by a personal fall protection system or safety net, but is unable to self-rescue
    - Records of completed training and certifications.

Note: When working on or around radio towers/antennas make sure terrain and weather conditions are considered.

Use of Gin Poles

If gin poles are used, supervisors need to ensure that they are installed and used according to the manufacturer's specifications.

More information on Fall Protection?

WorkSafeBC pamphlet: [An Introduction to Personal Fall Protection Equipment](#)

Appendix H – Sample Accident/Incident Investigation Form

ACCIDENT/INCIDENT INVESTIGATION REPORT

PERCS Group	Location	Telephone #	Date of Report

Last Name of Injured (or ill) person	First Name:	File No.

Years of Member Service	Time on Present Job	Role	Hours Worked in Previous 24 Hr Period

Accident Location	Date of Accident/Incident	Time

Accident Category (check)	☐ Injury or Illness	☐ Equipment Malfunction	☐ Motor Vehicle	☐ Property Damage	☐ Fire	☐ Other (specify)
Severity of Injury or Illness (check)	☐ No Injury or First Aid Only		☐ Medical Treatment		☐ Time Loss	☐ Fatal

Nature of Injury or Illness (e.g.: lower back pain, swollen ankle, cut to right arm, etc.)

Description of Accident or SAR Members Account Injury/Illness (use separate sheet if necessary)

Were Written Safe Work Procedures Established and Available? ☐ Yes ☐ No ☐ n/a	Were they Adequate? ☐ Yes ☐ No ☐ n/a	Were these Safe Work Procedures used in Training? ☐ Yes ☐ No ☐ n/a

Basic Cause (and Contributory Factors) -- EXPLAIN FULLY UNSAFE CONDITIONS

Corrective Measures Taken and/or Recommended

Corrective Action Referred To:_____   Date To Be Completed By:_____

Additional Comments or Observations. Where applicable give details of makes & models of machines, equipment, tools, structures, etc., involved in this accident. (Use separate sheet if necessary)

Name(s) & position(s) of person (s) who investigated accident (list separately if required):

Print Name	Phone	Position
Print Name	Phone	Position
Print Name	Phone	Position
Print Name	Phone	Position
Date		

Name(s) of Witness(s) - include phone number. List separately if required.

Any incident involving injury/fatality must be reported to EMBC/PEP

Original Retained by PERCS Group and Copy to:

1.   EMBC/PEP Regional Manager

2.   _____

3.   _____

Appendix I – Records to be maintained

SAFETY RECORDS

Records should be maintained for the following. Unless otherwise indicated records should be retained until updated or the purpose of the record has been reasonably met. Training records should be retained as long as the responder is active

Type of Records	Record Requirements
Training	Records of training undertaken by PERCS's members
Risk assessments	A record of the risk assessment that has been conducted (Reference Safety Guide Component 2)
Workplace Inspection Reports	Reports should be maintained for at least one year
Incident Investigation reports	Reports should be completed on all incidents and investigations and distributed as per local procedures.
Management meetings	A record of regular meetings where safety was an agenda item
First aid treatment records	A first aid record book or similar record should be maintained when a member received medical treatment. Retain for 3 years.
Machine or equipment Inspection, testing and maintenance records	Records of use, manuals, standards, inspections, tests, etc required for the safe operation of equipment.
Inventory of hazardous substances - MSDS	An inventory should be maintained which identifies all hazardous substances at the workplace in quantities that may endanger radio operators in an emergency including controlled products covered by WHMIS legislation. MSDS older than 3 years should be updated.
Heat & Cold stress assessments (when required)	Not normally an issue, but may be necessary for some radio operation situations
Competency of equipment operators	PERCS should retain records of instruction and endorsements/licenses of all operators
Radio equipment maintenance	Test and maintenance records should be available upon request to any supervisor or member concerned with the safe operation of the equipment. Retain until equipment is disposed.

Appendix J– Worker Care

Worker Care Guide

Responding to Stressful Events
Source: Public Health Agency of Canada

Self-Care for Caregivers

Natural or human-caused disasters such as earthquakes, health emergencies, terrorist attacks or acts of war can engage caregivers (physicians, psychologists, social workers, nurses, psychiatrists, teachers, counselors, and other health workers) in working long hours helping people of all ages to understand and manage the many reactions, feelings and challenges triggered by these stressful circumstances.

The massive effort put forth by caregivers in response to the psycho-social effects of catastrophic events is a critical contribution to their community's recovery. However, caregivers sometimes need to be reminded that a sustained response can also lead to physical and emotional wear and tear. Without conscious attention to self-care, caregivers' effectiveness and ultimately their health will suffer.

Common Sources of Stress for Caregivers

Here are common sources of stress that caregivers may be faced with:

- Trying to live up to their clients' high expectations and/or their own
- Intensive caring for others at the expense of self-care
- Inability to set appropriate boundaries
- Pushing themselves too hard
- Mental and physical demands
- Heavy workloads
- Long hours on the job
- Time pressures
- Limited resources
- Competing priorities
- Media requests
- Political and organizational pressures

Be on the Alert for Signs of Stress

Caregivers are usually alert to the stresses of people they help. They are not, however, always as alert to the stress and fatigue that can slowly surface in their own lives, and need to be reminded of normal stresses that may affect them.

Common Physical/Behavioural Reactions: fatigue, loss of appetite, difficulty falling asleep, restlessness, headaches, changes in sleeping, increased blood pressure, changes in eating habits, increased susceptibility to colds, flu, infection, change in libido, changes in smoking habits, changes in alcohol and drug consumption.

Common Emotional Reactions: feeling helpless, overwhelmed, inadequate, fragile, vulnerable, unable to cope or go on, increased mood swings, decreased motivation, feeling burned out, crying more frequently and easily, isolation, changes in communication patterns and other relationship dynamics, withdrawal.

Common Cognitive Reactions: confusion, difficulty making decisions, difficulty problem solving, memory blanks, having ambiguous feelings, questioning why this happened in a world that is supposed to be safe, difficulty concentrating or paying attention.

Caregivers are not immune to the above reactions and need to remind themselves that these are normal human responses to stressful circumstances. Although many of the underlying stresses cannot be prevented, you can increase your resistance by taking care of yourself and staying healthy. It is important to pace yourself and know your limits so you can continue to be available to your clients and your community.

Here are some stress-relieving activities:

- **Go for a 15-minute walk** during a lunch or coffee break. Take other opportunities to be physically active.

- **Eat sensibly.** Avoid excessive use of caffeine and alcohol. Drink plenty of water and juices.

- **Know and respect your limits.** If you feel exhausted and need time off, take it. Respect commitment for regularly scheduled time off.

- **Spend time with family and friends.** Talk to them. Listen to their stories. Listen to them if they become concerned with your health and well-being.

- As much as possible, continue to **participate in previous social and recreational activities.**

- **Get some rest.** If you have trouble sleeping, get up and do something relaxing or enjoyable.

- **Be on the lookout for any changes** in your habits, attitudes and moods.

- **Share your own and clients' reactions** and issues with colleagues. Don't hesitate to ask others for advice.

- **Include yourself on the list of people you are taking care of**. Take some time to do something just for yourself every day. Taking care of yourself will put you in better shape to give care to others.

- **Be self-nurturing** and don't forget to laugh.

Delayed Stress Reactions

Past experiences have shown that after tragic events, it may take several weeks to adjust to "regular" routines. This is normal. Following the tips on self-care given above will help you deal with delayed reactions.

Taking care of our families

- Reassure family members who may be worried about their safety and about the future.

- Take time to talk about the events. Relax together. For example, go to a movie or Taking Care of Ourselves, Our Families and Our Communities for a meal. Remember, taking time out is not a cop-out.

- Everybody needs to be heard and understood.

- Visit with relatives and friends.

When to Seek Help

The information offered in this brochure is a reference point to help you to understand some of the stress reactions you or other family members or friends may experience. If, at any time, you feel overwhelmed and unable to cope it is important to seek out additional assistance. Here are some circumstances which indicate that it is time to get help by speaking to a health professional such as a psychologist, family doctor, psychiatrist, social worker or nurse:

- Can't return to a normal routine
- Feeling extremely helpless
- Having thoughts of hurting yourself or others
- Using alcohol and drugs excessively

Resources which may be available in your community to call for help:

- Distress or crisis centers
- Hospital in your community
- Family service agency
- Bereavement group
- Leader of your faith community
- Include family and friends you can call to talk things over.