

*Washington State Animal Response Team*



[www.washingtonsart.org](http://www.washingtonsart.org)

## **OPERATING PROCEDURE NO. 3 WASART COMMUNICATIONS PROCEDURE**

**Revision: Original**

**Release Date: February 7, 2014**

### **Approved by:**

/s/ \_\_\_\_\_  
William Daugaard  
WASART President

/s/ \_\_\_\_\_  
Chris Black  
Chair, WASART Technology/Communications  
Committee

# OPERATING PROCEDURE NO. 3: WASART RADIO COMMUNICATIONS PLAN

## TABLE OF CONTENTS

<u>TOPIC</u>	<u>PAGE NO.</u>
<b>1.0    <u>PURPOSE</u></b>	1
<b>2.0    <u>NOTICE OF INDIVIDUAL RESPONSIBILITY</u></b>	1
<b>3.0    <u>OVERVIEW OF RADIO TYPES</u></b>	1
<b>3.1    <u>FRS/GMRS</u></b>	2
<b>3.2    <u>Commercial VHF</u></b>	2
<b>3.3    <u>Cellular Phone</u></b>	2
<b>3.4    <u>Amateur Radio</u></b>	2
<b>3.5    <u>Citizens' Band (CB)</u></b>	3
<b>4.0    <u>COMMON WASART USAGE</u></b>	3
<b>4.1    <u>FRS</u></b>	3
<b>4.2    <u>Commercial VHF</u></b>	3
<b>5.0    <u>RADIO ETIQUETTE</u></b>	3
<b>6.0    <u>PERSONAL RADIO EQUIPMENT</u></b>	4
<b>6.1    <u>FRS</u></b>	5
<b>6.2    <u>Commercial VHF</u></b>	5
<b><u>APPENDIX A: WASART COMMERCIAL VHF BAND PLAN</u></b>	A1
<b><u>APPENDIX B: GLOSSARY OF TERMS</u></b>	B1
<b><u>APPENDIX C: PHONETIC ALPHABET</u></b>	C1

## **OPERATING PROCEDURE NO. 3: WASART RADIO COMMUNICATIONS PLAN**

### **REVISION RECORD**

<u>Revision</u>	<u>Release Date</u>	<u>Description</u>	<u>Affected Sections</u>
Original	TBD	Initial release	All

## **OPERATING PROCEDURE NO. 3: WASART RADIO COMMUNICATIONS PLAN**

### **1.0 PURPOSE**

The purpose of this document is to describe for WASART members what radio communication resources are available during a deployment, as well as the appropriate usage of those resources.

A variety of radio types may be used during a WASART deployment, but all are regulated by the Federal Communications Commission (FCC). The procedures described here are intended to facilitate effective field communications and to help individuals comply with the FCC regulations.

### **2.0 NOTICE OF INDIVIDUAL RESPONSIBILITY**

Individuals are responsible for ensuring all personally-owned equipment complies with the relevant FCC regulations. These requirements vary depending on the type of radio and may include, but are not limited to, the following:

- Commercial VHF radios must not be field-programmable
- All radios must only transmit within legal parameters such as power level, frequency, and bandwidth

Individuals are also responsible for using personally owned or WASART-issued equipment in compliance with WASART policy and FCC regulations. These requirements vary depending on the type of radio and may include, but are not limited to, the following:

- Transmitting only on frequencies the operator is licensed to use
- Transmitting only mission-related information
- Refraining from transmitting foul or otherwise offensive language

All radio traffic is public and is likely to be monitored by news organizations, law enforcement, agents of the FCC, and/or the public. Violation of FCC regulations may bring severe penalties for both the individual and WASART.

If members have any questions or concerns about radio equipment or the appropriate usage of it, they should contact the WASART Communications Committee, the on-scene Operations Leader, or their Team Leader.

### **3.0 OVERVIEW OF RADIO TYPES**

This section is a brief description of each of the radio types that may be encountered during a WASART deployment. The types most commonly used by WASART will be discussed in more detail below.

## **OPERATING PROCEDURE NO. 3: WASART RADIO COMMUNICATIONS PLAN**

### **3.1 FRS/GMRS**

FRS (Family Radio Service) is a short-range consumer “walkie-talkie” style radio service that does not require a license to operate. It is most useful around a smaller area, such as a shelter or command post.

GMRS (General Mobile Radio Service) is a related service to FRS, and while it is slightly longer range, it does require an individual license. For this reason, it is not generally used by WASART.

Many radios on the market today are a “hybrid” type, and support both FRS and GMRS. These are fine for WASART use.

### **3.2 Commercial VHF**

Commercial VHF (Very High Frequency) radio is the long-range radio service used by WASART, Search and Rescue, and many Public Safety departments. There are portable (hand-held) and mobile (car-mounted) radios available. Mobile radios usually provide 35-50 watts of output power, compared to 5 watts for a portable radio, and have a correspondingly longer range. An FCC license must be held by an organization to operate on these frequencies. WASART maintains a license for several frequencies, and permission to use other frequencies may be granted by other license holders such as a Sheriff’s Office or Fire Department on a case-by-case basis to accomplish operational needs.

Commercial VHF radios may also transmit on Amateur VHF frequencies, as long as the operator possesses their own personal Amateur radio license from the FCC.

### **3.3 Cellular Phone**

Cellular phones may not always have service, but are a valuable tool when they work. Cellular phones are the only radio type that is direct and private. Photos, maps, subject descriptions, and GPS coordinates can be sent quickly and easily over SMS (Short Message Service, or “text”) messages.

### **3.4 Amateur Radio**

Amateur radio (also known as “ham radio”) is similar to Commercial VHF, but requires the operator to have a personal Amateur radio license from the FCC. This service may be used as a fallback if other radio services are unavailable. Operations Leaders (OLs) and Team Leaders (TLs) may be required by WASART policy to hold Amateur radio licenses.

## **OPERATING PROCEDURE NO. 3: WASART RADIO COMMUNICATIONS PLAN**

While Commercial VHF radios may transmit on Amateur frequencies, Amateur radios may NOT transmit on Commercial frequencies.

### **3.5 Citizens' Band (CB)**

Citizens Band (CB) radio is a medium-range unlicensed radio service commonly used by the trucking and logging industries. It is not often utilized by WASART, but may be used if available and needed, especially for transport teams.

## **4.0 COMMON WASART USAGE**

WASART primarily uses Commercial VHF radios for command and long-range communication, and FRS for intra-team/short-range communication such as in a shelter or command post.

### **4.1 FRS**

WASART only uses FRS channels 8-14. The OL or TL will assign teams to different channels to avoid conflict.

FRS also supports so-called “privacy codes”. These are a misnomer, as they do not actually provide any privacy or protection. They can, however, provide a tremendous amount of confusion. WASART does not use these “privacy codes”, and they should be disabled (or set to “0”) on all radios.

### **4.2 Commercial VHF**

Commercial VHF radios operate on named channels. Each of these channels has restrictions on when and where they may be used. Members must only use Commercial VHF channels as assigned by the OL. If radio interference is experienced on one channel, a different channel should be assigned instead.

WASART VHF radios will be programmed with the channels in Appendix A. WASART members may also program these channels into their personally owned radios, for use while actively deployed on WASART missions. It is recommended that members program these channels as shown, and place any additional channels at the end of the list. Members should not program any other channels unless they have a reasonable expectation to be authorized to use them. Members MUST NOT transmit on any commercial VHF channel unless authorized to do so. Channels will most often be referred to by name, but the channel number may also be used.

## **5.0 RADIO ETIQUETTE**

The fundamental rules of radio etiquette are:

## **OPERATING PROCEDURE NO. 3: WASART RADIO COMMUNICATIONS PLAN**

- Be concise. Think about what you will say before you start to transmit. Keep it brief.
- Be professional. Do not use profanity or discuss anything unrelated to the mission.
- Be precise. Repeat phone numbers or GPS coordinates for confirmation. Use the phonetic alphabet.
- Avoid using names. Refer to others by their position, such as “Intake Supervisor” or “Team 5”.
- Use plain language. No “10 codes” and avoid abbreviations.
- Radios are one-way. No one else can speak while you are transmitting, even in an emergency.

To make a call, follow these steps. This assumes you are the leader of Team 1, sending a message to the WASART OL on the primary VHF channel named “WASART”. **NOTE:** Use of the word “Command” is now discouraged, as it conflicts with other usage in the Incident Command System.

1. Check your radio channel, volume control setting, and battery level.
2. Push and hold the transmit button then pause for one second.
3. Hold the microphone a few inches from your mouth and speak clearly at a normal volume.
4. Say “WASART OL, this is Team 1 on WASART” (remember: “Hey you, it’s me”)
5. Pause for one more second, then release the transmit button.
6. Wait for a response. If none within one minute, repeat call.
7. The other party should respond with “This is WASART OL, go ahead” or “Go for WASART OL”.
8. Once the other party responds, relay your message and wait for confirmation.
9. The other party should confirm with “WASART OL copies” or “WASART OL acknowledges.”
10. When finished, say “Team 1 clear.”

### **6.0 PERSONAL RADIO EQUIPMENT**

It is generally not necessary for WASART members to purchase their own radios. A small number of radios are available to be issued by the unit as needed. However, if members would like to purchase their own, they should consider the information in this section. The Communications Committee and fellow members are also excellent resources for advice.

## **OPERATING PROCEDURE NO. 3: WASART RADIO COMMUNICATIONS PLAN**

### **6.1 FRS**

Most consumer FRS or FRS/GMRS hybrids are inexpensive and will work fine. While many radios advertise very long ranges, up to 35 miles, be aware this is only under the most ideal circumstances. All FRS radios have a usable real-world range of about 0.25-2 miles. This is perfectly acceptable for our uses.

Features you may want to consider include being waterproof, or the availability of hands-free kits. Voice activation (vox) features and privacy codes are unlikely to be useful, and should be disabled if present.

If purchasing a GMRS or FRS/GMRS hybrid radio, keep in mind that you must have a personal GMRS license to use any channels besides 8-14.

### **6.2 Commercial VHF**

Commercial VHF radios are labeled as “Part 90 Certified.” There is a wide range of options, from \$100 to several thousand dollars, in both portable (hand-held) and mobile (car-mounted) configurations. For WASART use, an inexpensive portable radio is recommended, such as the Baofeng UV-5R or Wouxun KG-UV6X. These also function well on the amateur frequencies, as long as the operator has an amateur radio license. External magnetic-mount antennas will greatly extend the range when used within a car. All radios are now required by the FCC to be “narrow band” compliant, and should have a frequency step range of 2.5khz.

Commercial VHF radios arrive without any channels programmed in them. A cable and software (specific to that model of radio) are required to input the WASART channels, but check with the Communications Committee and other members of the unit before purchasing them, as someone may be able to loan them to you. Do not input any channels other than those in the WASART band plan described below, unless you have a reasonable expectation to be authorized to use them.

# OPERATING PROCEDURE NO. 3: WASART RADIO COMMUNICATIONS PLAN

## WASART VHF Band Plan

Prepared: 2014-02-06

Restricted Distribution

# OPERATING PROCEDURE NO. 3: WASART RADIO COMMUNICATIONS PLAN

## WASART VHF Band Plan

Prepared: 2014-02-06

Restricted Distribution

## **OPERATING PROCEDURE NO. 3: WASART RADIO COMMUNICATIONS PLAN**

### **APPENDIX B: GLOSSARY OF TERMS**

**Amateur Radio (ham).** A radio service operating in specified amateur radio frequency allocations using appropriate amateur radio equipment. Ham radios may be used by licensed members of WASART for any non-commercial purpose but may NOT be used on commercial frequencies.

**Citizen Band (CB) Radio.** 40 allocated channels in the 26 and 27 MHz bands, which require no license to operate on. CB is commonly available and is especially useful when other volunteer agencies are involved.

**Commercial Radio.** Business band radio equipment and frequencies as authorized by FCC licenses. Commercial radios are the standard radio for interoperability between agencies and WASART, and for WASART OLs and TLs.

**Family Radio Service (FRS).** An unlicensed UHF radio service that uses 14 frequencies and very low output power (.5 watts.) FRS is used in Base and Shelter to free up other radio frequencies.

**General Mobile Radio Service (GMRS).** A licensed UHF radio service using specific frequencies. GMRS transmits at 1.5 to 5 watts so has longer range than FRS.

**Repeater.** A piece of equipment which receives radio signals on one frequency and simultaneously re-transmits them on a different frequency. Repeaters are used to extend the usable range of a radio.

**Sub Audible (CTCSS, or Continuous Tone Code Squelch System) Tones.** Both commercial and ham radios are capable of transmitting what are referred to as sub-audible tones. These are continuous low frequency tones that are sent out while the radio is transmitting. Receiving equipment can be programmed to only operate when it receives the proper tone and in this manner will not hear transmissions from radios that are not sending the proper tone.

These tones are referred to by several different names, including "Sub Audible", "CTCSS", and "PL". There is also a digital variation called Digital PL, or DPL, which is in widespread commercial use.

## **OPERATING PROCEDURE NO. 3: WASART RADIO COMMUNICATIONS PLAN**

### **APPENDIX C: PHONETIC ALPHABET**

It is often difficult to tell the difference between two letters of the alphabet when spoken individually over the radio. To resolve this, the phonetic alphabet is used by substituting a specific word for each letter. There are two phonetic alphabets in common use, the "Police alphabet" and the "NATO alphabet", although you may hear others making up their own as well. The federal standard for all organizations is the NATO alphabet.

<b>NATO Phonetic Alphabet</b>	
A	Alpha
B	Bravo
C	Charlie
D	Delta
E	Echo
F	Foxtrot
G	Golf
H	Hotel
I	India
J	Juliet
K	Kilo
L	Lima (LEE-mah)
M	Mike
N	November
O	Oscar
P	Papa
Q	Quebec (keh-BECK)
R	Romeo
S	Sierra
T	Tango
U	Uniform
V	Victor
W	Whiskey
X	X-ray
Y	Yankee
Z	Zulu
.	Decimal
-	Dash