



Section 9501

Communications Manual

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Communications Manual

9501.1 Introduction

This document has been prepared for Northwest Area Contingency Plan (NWACP)-Regional Response Team (RRT) agency planners and managers, as well as the communicators that would be involved in the emergency communications aspects of incident response. It describes how the Communications Unit is organized and incorporated within the Incident Command System (ICS) and identifies the main organizational, equipment, and training requirements to be addressed by planners and managers prior to an incident. Appendix A, “Communications,” and Appendix B, “The 5300 (Frequency and Communications Resource Summary)” identify the emergency communications offices and operating frequencies of the principal federal and state agencies and private organizations involved in incident response activities.

9501.1.1 Discussion

Effective communication among all involved parties and agencies is crucial when coordinating an effective response to an incident. Use of ICS and a well thought-out communications plan are imperative to a coordinated response. Within the ICS structure, the Communications Unit is located within the Logistics Section, which is managed by the Logistics Section Chief or Service Branch Director, depending on the size of the incident. The Communications Unit is managed by the Communications Unit Leader.

Planners and managers addressing anticipated communications requirements should consider what personnel, training, and equipment would likely be needed for the “Design Incident,” as well as for preparing for a “Semi-Worst Case.” Prior to an incident, members of the RRT and local government, together with community business representatives, should be involved with the selection and preparation of potential Incident Command Centers and equipment staging areas. With suitable preparation, the initial Communications Unit responders will be able to facilitate rapid installation of an emergency communications system.

Failure to properly plan, position, command, and control resources will prove devastating to the response. Cost and operability are important considerations when obtaining equipment and services.

1 9501.1.2 Initial Notice

2 Actions to be taken by planners and managers when receiving initial notification
3 of an incident include designating a reporting location and providing initial
4 assignments for communicators, a reporting time, local travel instructions, and the
5 need for cell or satellite phones, radios, or any special communications
6 equipment. There are likely to be serious delays of equipment or personnel if
7 these initial actions are not considered and addressed prior to an incident.
8

9 Following the initial notification, communicators should report to the Staging
10 Area or Logistics Section Chief for assignment to the Communications Unit
11 Leader. The Communications Unit Leader will then assign communicators to
12 specific ICS Sections as necessary.
13

14 9501.1.3 Initial Requirement (First 24 Hours)

15 Prior to an incident, planners and managers of response activities should complete
16 pre-disaster preparations such as determining short- and long-range
17 communications requirements, establishing standard radio communications
18 procedures, selecting and training staff, and obtaining radios and other necessary
19 initial response equipment in coordination with the Communications Unit Leader.
20 RRT Communicators should be familiar with and be able to utilize regional very
21 high frequency (VHF) repeaters and be able to incorporate trained radio operators
22 from the United States Coast Guard (USCG) Reserve, Auxiliary, or Amateur
23 Radio Emergency Services (ARES). Cellular phones, charging units, and
24 landlines are considered basic communications for initial incident response and
25 should be brought to the incident or obtained on site. If the local telephone service
26 cannot provide the number and type of circuits you require, request the Federal
27 Emergency Management Agency (FEMA) and/or Marine Spill Response
28 Corporation (MSRC) van with satellite power branch exchange (PBX) capability.
29 Contact the Lease/Purchase Officer for funding authority. Contact the selected
30 phone company to arrange for installation and request expected delivery date. The
31 Communications Unit Leader or equivalent is to receipt for leased equipment at
32 the Emergency Operations Center (EOC), including satellite telephones, other
33 portable satellite telephone equipment, pagers, and portable VHF/UHF radios,
34 including batteries and charging units.
35

36 The Communications Unit Leader or equivalent has overall responsibility for the
37 following communications equipment and personnel requirements with support
38 from the Staging Site Manager.
39

40 9501.1.3.1 Distribution and Inventory Control

41 One of the most important issues associated with incident response is resource
42 inventory and material control. Without a proper inventory, materials become lost
43 or stolen. The Communications Unit Leader or Equipment Staging Area
44 Custodians must thoroughly control equipment issue and recovery. This section
45 outlines the actions to be taken for receipt and resupply of communication
46 equipment and services.
47

1 9501.3.1.1 Fixed Landline

2 The Communications Unit Leader, or equivalent, is responsible for approval and
3 receipt of any commercial telephone installation, reporting damage to leased
4 equipment, and obtaining replacements as required. Requests for hardware, circuit
5 installations, or deinstallations must be approved by the Communications Unit
6 Leader. Contact the appropriate vendor for new or additional services, and obtain
7 an expected delivery date. Receipt for the equipment at the EOC. The
8 Communications Unit Leader will arrange for circuit deinstallations as required or
9 after unit demobilization.

10

11 9501.1.3.2 Cellular Phones

12 The Communications Unit Leader estimates the need for new or additional
13 cellular phones and then obtains funding authority from the Lease/Purchase
14 Officer to purchase or lease the additional equipment. Contact the appropriate
15 cellular service provider to arrange for new or additional services and obtain an
16 expected delivery date. Receipt for the equipment at the EOC and arrange
17 transportation for the equipment to the staging site. The Staging Site Manager
18 accepts, inventories, and disburses the new equipment as required. Unrepairable
19 equipment is to be surveyed and reordered as required. The Staging Site Manager
20 returns the equipment to the Communications Unit Leader after unit
21 demobilization. The Communications Unit Leader returns any leased equipment
22 back to the vendor.

23

24 9501.1.3.3 Satellite Phones

25 The Communications Unit Leader estimates the need for satellite telephone
26 services and obtains funding authority from the Lease/Purchase Officer to
27 purchase or lease the additional equipment. Contact appropriate vendors to
28 arrange for purchase of portable satellite hardware and service. Obtain an
29 expected delivery date. Receipt for the equipment at the EOC and arrange
30 transportation for the equipment to the staging site. The Staging Site Manager
31 accepts, inventories, and disburses the new equipment as required. Unrepairable
32 equipment is to be surveyed and reordered as required. The staging area site
33 manager returns the equipment to the Communications Unit Leader after unit
34 demobilization. The Communications Unit Leader returns any leased equipment
35 back to the vendor.

36

37 9501.1.3.4 Pagers

38 The Communications Unit Leader estimates the need for new or additional paging
39 services and then obtains funding from the Lease/Purchase Officer to purchase or
40 lease the additional equipment. Contact the appropriate vendors to arrange for
41 new or additional services and then obtain an expected activation date. Receipt for
42 the equipment at the EOC and arrange transportation for the equipment to the
43 staging site. The Staging Site Manager accepts, inventories, and disburses the new
44 equipment as required. Unrepairable equipment is to be surveyed and reordered as
45 required. The Staging Site Manager returns the equipment to the Communications
46 Unit Leader after unit demobilization. The Communications Unit Leader returns
47 any leased equipment back to the vendor.

1

2 9501.1.3.5 Phone Book (Incident-Specific)

3 The Communications Unit Leader or staff develops a small, incident-specific
4 phone book to contain email addresses, primary/secondary radio frequency
5 working channels and assigned telephone numbers of pagers, satellite, and
6 cellular telephones.

7

8 9501.1.3.6 Portable (Mobile or handheld) Radio

9 The Communications Unit Leader estimates the need for additional portable
10 radios and then obtains funding authority from the Logistics Officer to purchase
11 or lease the portable (handheld) radio equipment. Contact commercial vendors to
12 arrange for new or leased portable radio hardware and obtain an expected delivery
13 date. To obtain a cache of portable handheld radio equipment, contact the
14 National Interagency Fire Center point of contact listed in Section 9501.4, below.
15 Receipt for the equipment at the EOC and arrange transportation for the
16 equipment to the staging site. The Staging Site Manager accepts, inventories, and
17 disburses the new equipment as required. Equipment that is inoperable is to be
18 surveyed and reordered as required. The Staging Site Manager returns the
19 equipment to the Communications Unit Leader after unit demobilization. The
20 Communications Unit Leader returns any leased equipment back to the vendor.

21

22 9501.1.3.7 Fixed (Base Station) Radio

23 The Communications Unit Leader determines short and long-range
24 communications (UHF/VHF/high frequency [HF]) needs. To request fixed radio
25 communications support from state and federal agencies, private companies, or
26 volunteer organizations, refer to Sections 9501.3 and 9501.4, below.

27

28 9501.2 Equipment Capabilities**29 9501.2.1 Types of Communication Systems**

30 The following briefly describes some of the many different communications
31 systems that may be employed during incident response. Planners and managers
32 should recognize the capabilities and limitations of such equipment prior to an
33 incident and undertake measures to obtain equipment, train personnel, provide
34 support, and maintain these systems, before, during, and after the incident.

35

36 9501.2.1.1 Cellular Telephone Systems

37 Battery powered cellular phones can free the user from dependence on
38 commercial power or vehicle batteries. Systems are now available that permit
39 facsimile as well as voice transmissions over cellular phone equipment. As
40 cellular telephone service becomes more widely available, it is helping to fill
41 many communication gaps, giving incident response managers immediate access
42 to the telephone system. It should be recognized, however, that cellular
43 communications systems quickly become saturated with traffic during an
44 emergency.

45

1 **9501.2.1.2 Satellite Telephone Systems**

2 The use of satellite telephones is increasing with improved service capabilities
3 and reduced costs. Due to the limitations of cellular telephones, particularly
4 during emergencies, the satellite telephone has frequently become the preferred
5 form of backup emergency communications for response agencies.

7 **9501.2.1.3 Government Emergency Telecommunications Service**

8 This section is adapted from the United States Department of Homeland Security
9 website: [http://www.dhs.gov/government-emergency-telecommunications-
11 service-gets](http://www.dhs.gov/government-emergency-telecommunications-
10 service-gets)

12 The Government Emergency Telecommunications Service (GETS) is an
13 emergency phone service provided by the National Communications System in
14 the Information Analysis and Infrastructure Protection Division of the Department
15 of Homeland Security. GETS supports federal, state, and local government,
16 industry, and non-governmental organization personnel in performing their
17 National Security and Emergency Preparedness (NS/EP) missions. GETS
18 provides emergency access and priority processing in the local and long distance
19 segments of the Public Switched Telephone Network (PSTN). It is intended to be
20 used in an emergency or crisis situation when the PSTN is congested and the
21 probability of completing a call over normal or other alternate telecommunication
22 means has significantly decreased.

23
24 GETS is necessary because of the increasing reliance on telecommunications. The
25 economic viability and technical feasibility of such advances as nationwide fiber
26 optic networks, high-speed digital switching, and intelligent features have
27 revolutionized the way we communicate. This growth has been accompanied by
28 an increased vulnerability to network congestion and system failures. Although
29 backup systems are in place, disruptions in service can still occur. Recent events
30 have shown that natural disasters, power outages, fiber cable cuts, and software
31 problems can cripple the telephone services of entire regions. Additionally,
32 congestion in the PSTN, such as the well-documented "Mother's Day
33 phenomenon," can prevent access to circuits. However, during times of
34 emergency, crisis, or war, personnel with NS/EP missions need to know that their
35 calls will go through. GETS addresses this need. Using enhancements based on
36 existing commercial technology, GETS allows the NS/EP community to
37 communicate over existing PSTN paths with a high likelihood of call completion
38 during the most severe conditions of high-traffic congestion and disruption. The
39 result is a cost-effective, easy-to-use emergency telephone service that is accessed
40 through a simple dialing plan and personal identification number card verification
41 methodology. It is maintained in a constant state of readiness as a means to
42 overcome network outages through such methods as enhanced routing and
43 priority treatment.

44
45 GETS uses three major types of networks, described below
46

- 1 • The major long-distance networks provided by Interexchange Carriers—
2 AT&T, MCI, and Sprint—including their international services;
3 • The local networks provided by local exchange carriers; wireless carriers;
4 and
5 • Government-leased networks, including the Federal Telecommunications
6 System and the Defense Information System Network.

7
8 GETS is accessed through a universal access number using common telephone
9 equipment such as a standard desk set, STU-III, fax machine, modem, or wireless
10 phone. A prompt will direct the entry of your personal identification number and
11 the telephone number. Once you are authenticated as a valid user, your call is
12 identified as an NS/EP call and receives special treatment.

13
14 See the GETS web site for program information, eligibility, and registration
15 procedures. Interested agencies must establish their own GETS account.

16 17 **9501.2.1.4 Marine VHF Radio**

18 All marine operations should include provisions for marine VHF radio
19 communications among all vessels in the area and designated coordinators.
20 Communicators on the water should be provided with properly licensed marine
21 VHF radio equipment. Such equipment makes it possible to warn other vessels
22 about operations and can also be used for coordinating the operations. However,
23 other channels may be preferred where suitable equipment is available.

24 25 **9501.2.1.5 VHF and UHF Channels in the Petroleum Radio Service**

26 Much of the VHF and UHF equipment in the Petroleum Radio Service utilizes
27 automatic coded audio frequency signals to open the target receiver's squelch.
28 "Private Line" (PL) codes must be controlled during incident response for proper
29 radio reception. Multiple PL codes on a frequency during a response will limit the
30 effectiveness of the radio hardware likely to arrive on the scene. Operators may
31 wish to consider deactivation of squelch controls during emergencies so that all
32 users of the frequencies will be aware of and give priority to emergency
33 communications.

34
35 Some of the Petroleum Radio Service VHF channels are close in frequency to the
36 band assigned to the Marine VHF Radiotelephone Service (156.025-157.425
37 megahertz [MHz]). This presents the technical possibility that a single radio and
38 antenna system can be used to access both services. Equipment with digital
39 frequency control and scanning capability could thus be used to monitor radio
40 traffic and communicate on several channels in both services.

41 42 **9501.2.1.6 HF Single Sideband Radios**

43 For communications over long distances, at sea, and in undeveloped areas such as
44 much of northern Canada and Alaska, HF, 2MHz to 30 MHz, single-sideband
45 (SSB) voice radio equipment is commonly used. Contingency Planners should
46 recognize that radio propagation by HF radio changes widely over daily and
47 yearly cycles and is strongly influenced by changes in solar activity. One may

1 have an excellent radio communications link with a station several hundred miles
2 away, and a few hours later, be completely unable to hear that station. Despite
3 these limitations, HF radio remains the primary backup emergency
4 communications system in the United States.

5

6 **9501.2.1.7 Paging System**

7 The familiar “beeper” is essentially a one-way radio communication system that
8 enables persons within range of the paging system transmitter to be alerted or
9 receive a brief message.

10

11 Pagers are widely used by persons with response contingency responsibilities.
12 Integrated paging systems are now in commercial use, which permits an
13 individual to be paged and receive a short message in virtually any populated area
14 throughout the United States and Canada.

15

16 **9501.2.1.8 Written Documentation**

17 Memos, letters, reports, journals of activities, phone logs, radio logs, and other
18 written documents all play important roles in coordinating emergency response
19 activities and building a history of decisions and activities in response to an
20 incident. Careful and accurate documentation will help produce orderly and
21 efficient incident response. Poor documentation produces only confusion.

22

23 **9501.2.1.9 Telex**

24 Telex service, which permits wire communication through automated exchanges,
25 can be useful for responders. This service permits passing written communication
26 quickly between subscribers.

27

28 **9401.2.1.10 Fax**

29 Fax systems permit text and graphic information (maps, diagrams, signatures,
30 etc.) to be transmitted over telephone lines or by radio. With special attachments,
31 cell phones can be used for transmission of facsimile traffic.

32

33 **9501.2.1.11 Microcomputers with Modem**

34 Microcomputers with telephone modems, particularly battery-operated laptop
35 units, offer a wide variety of communication options previously not available. For
36 example, a control computer can be set up to receive telephone or radio calls from
37 other computers at any time. With proper authentication, portable computers at
38 widely separated locations can “upload” information to the control computer or
39 “download” information from it. With appropriate software and accessories, a
40 microcomputer can be made to emulate fax equipment.

41

42 **9501.2.1.12 Internet**

43 The Internet has wide applicability for incident response. In addition to the
44 preparatory communications activities that are conducted prior to an event, such
45 as training notifications, equipment research and procurement, etc., public
46 announcements and warnings may be quickly sent to a widespread audience.

47

1 9501.2.1.13 Radio Communication Support Systems

2 Regardless of the frequency band involved (HF, VHF, or UHF) all radio
3 communication systems require certain resources and ancillary equipment to
4 operate. These are briefly discussed in the following subsections.
5

6 9501.2.1.14 Power

7 The source of electrical power for a given radio may be domestic power, internal
8 or external batteries (rechargeable or one-time use), or a dedicated electrical
9 generator. Twelve- or 24-volt direct current radios are available for use in
10 vehicles and boats. Output wattages are the same as for 120-volt alternating
11 current systems. Battery recharging energy may come from a domestic power
12 source, from a vehicle electrical system, or from solar cells. Where power outages
13 would cause unacceptable disruption of communication, an uninterruptible power
14 supply may be provided. Uninterruptible power supplies for communications
15 generally utilize a storage battery and power inverter system to provide temporary
16 ac power at an appropriate voltage.
17

18 9501.2.1.15 Shelter

19 Some radio equipment is designed with weather-resistant cases, permitting
20 considerable flexibility in where the equipment may be transported. However,
21 much of the communication equipment in common use must be protected from
22 harmful weather conditions. Heating may be required at some locations, and air
23 conditioning at others. Security guards or a suitable alarm or security system
24 should be considered at locations where vandalism or theft of equipment may
25 occur. Some operators may also require shelter.
26

27 9501.2.2 Incident Response Communications**28 9501.2.2.1 Communication of Initial Observations**

29 Communication of initial observations will typically be made by telephone or
30 radio. Written confirmation to appropriate governmental agencies should be made
31 as soon as possible after the initial report. In a given situation, there may be a
32 number of federal, state, and local government entities each with requirements for
33 incident reporting. Each may need a somewhat different set of information, each
34 may impose different reporting time constraints, and each may specify a unique
35 reporting format. Because of the complexity of reporting requirements,
36 organizations may wish to assign the responsibility for reporting an incident to a
37 single interagency office. This will facilitate the use of consistent information,
38 avoid duplicate reporting, and permit the accumulation of a historical database.
39

40 Current best practice is for Unified Command to publish information through an
41 incident-specific website.
42

43 9501.2.2.2 Logistics Coordination

44 Food, transportation, and, in some cases, shelter, must be provided to workers
45 during incident response operations. This is generally conducted over landline
46 phone, but could require a radio net in some cases. Supplies such as fuel, sorbents,
47 and machine parts must be procured and delivered to locations where needed.

1 Worn and broken equipment must be repaired or replaced. All of these activities
2 require good communication. For large operations, it may be desirable for the
3 Logistics Section to have communications channels separate from those used for
4 directing and coordinating the incident.

5

6 **9501.3 State/Volunteer Radio Communications**

7 **9501.3.1 State of Washington**

8 The Washington State Emergency Management Division (EMD) maintains a 24-
9 hour communications center for the State of Washington, located in the EOC at
10 Camp Murray. Initial notification should be made to EMD, and the Duty Officer
11 will record the information and make the appropriate local, state, and federal
12 notifications as prescribed in Washington's Standard Operating Procedures. The
13 phone numbers for contacting the EOC are as follows.

14

15 Primary Phone **1-800-258-5990**
16 Secondary Phone 253-912-4901 Or 4904

17

18 Business Phone **1-800-562-6108**
19 Satellite Phone 888-862-8459
20 Fax 253-512-7203

21 Email Address: Dutyofficer@Emd.Wa.Gov

22 Website: <http://mil.wa.gov/emergency-management-division>

23

24 **9501.3.1.1 Washington State Department of Ecology**

25 The Washington State Department of Ecology (Ecology) does not operate or
26 maintain its own statewide radio system but has permission to utilize both the
27 Comprehensive Emergency Management Network (CEMNET) system and the
28 Washington State Department of Natural Resources (DNR) statewide VHF
29 system. Ecology also has a cache of 30 high band programmable radios that are
30 available for use in case of a major incident.

31

32 As the designated On-Scene Coordinator for statewide environmental
33 emergencies, Ecology is required to be notified through Emergency Management
34 (as per Chapter 90.56.280 Revised Code of Washington) of any spill or release of
35 hazardous material into the environment. Ecology maintains, on 24-hour duty, up
36 to eight spill response specialists located throughout the state. They can be
37 contacted in case of any environmental or hazardous materials incident by calling
38 one of the following numbers.

39

40 **Emergency Management Division** **1-800-258-5990**

41 **OR**

42 **Department of Ecology (24-hours)**

43 SW Regional Office (Olympia) 360-407-6300

44 NW Regional Office (Bellevue) 425-649-7000

45 Central Regional Office (Yakima) 509-575-2490

46 Eastern Regional Office (Spokane) 509-329-3400

47

1 Headquarters (M-F 0800-1700) 360-407-6000

2

3 **9501.3.1.2 Comprehensive Emergency Management Network**

4 CEMNET is a statewide, Lo-band VHF radio system. This system is the primary
5 backup communications link between the State EOC and the local EOCs
6 throughout the state. This network also supports the daily operation of Ecology
7 statewide. CEMNET is the only state network capable of providing
8 communications between base stations and mobiles, and mobiles to mobiles
9 statewide. The CEMNET system utilizes base stations and repeaters controlled
10 through the Washington State Patrol microwave system and operates on the
11 following frequencies:

12

13 **Lo Band Channel F1 transmits on 45.200 MHz.**

14 Lo Band Channel F2 transmits on 45.360 MHz.

15 Lo Band Channel F3 transmits on 45.480 MHz.

16

17 The **On-Scene Command and Coordination Radio** operates on 156.135 MHz.
18 This network is managed by EMD through a mutual planning agreement between
19 the Associated Public Safety Communications Officers (APCO), the Washington
20 Department of Transportation, and EMD. All potential emergency responders are
21 eligible to apply through APCO for authorization to operate mobile and portable
22 units on this network for on-scene use only.

23

24 The **Washington State Department of Natural Resources** operates a statewide
25 VHF system, with communication provided on a regional basis. Radio repeaters
26 support each of the seven DNR regions. Each region is assigned area frequencies
27 for operations within the region. Any communications between regions occurs
28 only where there is overlap in the repeater system. Each region is also licensed to
29 operate on the DNR Common and State channels to coordinate with other
30 agencies.

31

32 **DNR** State channel transmits on 151.295 and receives on 159.420. Ecology has
33 permission to use the DNR frequencies on an emergency basis. Use of these
34 frequencies for emergency purposes should be coordinated with the DNR radio
35 communications manager.

36

37 **9501.3.2 State of Oregon**

38 The Oregon Emergency Response System is the 24-hour communications center
39 component for EMD. Initial notification will be made to a Duty Officer, who will
40 then make appropriate local, state, and federal notifications as prescribed in
41 standard operating procedures.

42

1
2 To contact the Duty Officer with the Oregon Emergency Response System, call:
3
4 Primary Phone 1-800-452-0311 (nationwide)
5 1-503-378-6377 (local to Salem, Oregon)
6
7 Secondary Phone 1-888-695-1674 (Satellite phone)
8
9 Secondary Radio State Fire Net (154.280 MHz).
10 800 MHz radio system
11 (National Calling Frequency 866.0125MHz)
12 Amateur radio (ARES/RACES)

13
14 Email Address oemd@oem.state.or.us
15
16 Web Page Address [https://www.oregon.gov/OMD/OEM/Pages/tech_resp/
17 oers.aspx](https://www.oregon.gov/OMD/OEM/Pages/tech_resp/oers.aspx)
18

19 **9501.3.3 State of Idaho**

20 The Idaho Bureau of Hazardous Materials
21 Military Division

22
23 Primary Phone 208-846-7610 (24/7)
24
25 Secondary Phone 800-632-8000 (Idaho only, 24 hours)
26
27 Web Page Address <https://ioem.idaho.gov/Pages/HazardousMaterials.aspx>
28

29 **9501.3.4 Volunteer Radio Communications Resources**

30 The Amateur Radio Emergency Services (ARES) consists of trained radio
31 communications enthusiasts who can provide communicators and operate from
32 numerous locations throughout the Pacific Northwest.

33
34 ARES is accessed through EMD or County Emergency Management offices.
35

36 Primary Radio 146.5200 MHz ARES Communications GEN Hailing &
37 Emergency Notification
38 145.6300MHz ARES Packet Operations Packet Communications
39

40 **9501.3.5 Industrial-Commercial Radio Communications Resources**

41 **9501.3.5.1 The Petroleum Radio Service**

42 (See Appendix B for individual frequencies)
43

44 The Petroleum Radio Service (PRS) was one of 20 networks of radio frequencies
45 once assigned to business and commercial entities. The PRS network connects
46 parties working with petroleum or petroleum products, including natural gas. In
47 June 1995, the Federal Communications Commission (FCC) created a

1 narrowband channel plan and determined that the 20 Private Land Mobile Radio
2 Services would be consolidated. In February 1997, the FCC created the Public
3 Safety and the Industrial/Business Frequency Pools. As a result, the PRS
4 frequencies dealing with incident response are now located in the
5 Industrial/Business Frequency Pool.

6 7 **9501.3.5.2 Marine Spill Response Corporation Communications Van** 8 ***1-800-OIL-SPILL***

9 The MSRC van contains a full suite of radio, satellite, and telephone equipment. It
10 is a fully mobile, self-contained unit capable of being deployed on short notice to
11 any drivable location. The MSRC maintains one of these vans at their facility in
12 Everett, Washington. Other such vehicles are maintained nationwide.

13 14 **9501.3.5.3 Maritime Fire and Safety Association Columbia River** 15 **Communications System**

16 **503-220-2055**

17 Web page: www.mfsa.com

18
19 The Maritime Fire and Safety Association communications system is actually four
20 different systems combined to provide an integrated communication network for
21 communicating on marine and oil spill communication channels. The system
22 provides radio coverage on the lower Columbia and Willamette Rivers from
23 approximately the city of Portland to greater than 3 miles beyond the Columbia
24 River bar. The four communications systems are:

- 25 ■ **Marine Channel Radio System.** This system provides communications
26 on various marine channels for communicating directly to ships and other
27 marine traffic.
- 28 ■ **Oil Spill Command and Control Radio System.** This system provides
29 continuous coverage from the city of Portland to Astoria and will allow
30 mobile units in Portland to communicate directly with units along the
31 Columbia River.
- 32 ■ **Oil Spill Tactical Radio System.** This system provides a series of radio
33 repeaters that are designed to provide coverage over a local area for the
34 local communications needs of incident response.
- 35 ■ **Microwave Radio System.** This system links all of the radio sites and
36 radio equipment back to the Merchant's Exchange for control and to the
37 radio consoles located there.

38 39 **9501.4 Federal-Canadian Radio Communications**

40 The Region 10 United States Environmental Protection Agency (EPA) is Co-
41 Chair (with the USCG) of the RRT. The Region 10 EPA headquarters is located
42 in Seattle, Washington, with an area of responsibility that includes Alaska,
43 Washington, Idaho, Oregon, and Native Tribes. EPA operates a VHF Base Station
44 in Seattle, with access to the FEMA and USCG radio repeaters.

45
46 EPA Communications point of contact is Jeffrey Rodin.

1 Primary telephone 206-553-6709
2 Fax # - 206-553-0175
3 Primary Radio Frequency -
4 Email – rodin.jeffry@epa.gov
5

6 **The 13th Coast Guard District** is Co-Chair (with EPA) of the RRT. The 13th
7 District's Information Technology and Communications Office, located in Seattle,
8 Washington, coordinates the USCG communications system throughout the
9 region. The system incorporates numerous fixed base radios operating within the
10 VHF-FM marine band, MF/HF maritime frequencies, and specific VHF-FM
11 land/mobile frequencies. These radios monitor distress calls, provide liaison with
12 the public, and include USCG command and control working channels, which are
13 operated by USCG telecommunications personnel at designated group units.
14

15 Phone # - (206) 220-7147
16 Fax # - (206) 220-7009
17 After Hours Phone (800) 982-8813 or (206) 220-7001
18

19 **Transportable Communications Center:** The Commander, Pacific Area,
20 maintains a Transportable Communications Center (TCC), located at the Coast
21 Guard Communications Area Master Station Pacific at Pt. Reyes, California. It is
22 a self-contained, rapidly deployable USCG resource that can provide a full range
23 of telecommunications capabilities to support a major incident response in a six-
24 hour recall status. Electronic Technicians and Telecommunications Specialists
25 accompany the unit. The TCC can be powered by generator (included) or directly
26 connect to a power source. The full antenna array setup requires an open area of
27 approximately 200 by 200 feet. These are important considerations in the decision
28 where to locate the unit and perhaps the forward command post. Requests for the
29 TCC are coordinated through the 13th District Seattle office. Capabilities include
30 point to point, air/ground and ship/shore communications in the HF/VHF/UHF
31 bands. Agency interoperability is enhanced through use of an ACU-100.
32

33 **The US Coast Guard Reserve** capabilities consist primarily of providing trained
34 radio Communicators. Requests for this support are coordinated through the 13th
35 District office.
36

37 **The USCG Auxiliary** consists of volunteer Auxiliarist Communicators, who
38 operate radios from fixed base stations, land mobiles, boats, and aircraft
39 throughout the Pacific Northwest. Requests for this support are coordinated
40 through the 13th District office.
41

42 **The Federal Emergency Management Agency** operates a number of
43 communications assets in Alaska, Oregon, Idaho, and Washington from the
44 Region 10 headquarters buildings located in Bothell, Washington. FEMA can also
45 support incident response with a large self-propelled, self-contained radio van
46 containing HF, VHF, UHF, KU band and Citizens Band radios, Merlin Switch
47 capability, cellular phone, fax, antennas, testing and repair facilities.

- 1 Point of Contact – 24/7 Watch Desk
- 2 Phone # - 425-487-4600 or (800) 395-6042, (425) 487-4448
- 3 Secondary Phone – 888-579-0019 (Satellite)
- 4 Email – bothell.moc@fema.gov
- 5 Web Page– <http://www.fema.gov>
- 6
- 7 The Seattle District **United States Army Corps of Engineers** operates HF and
- 8 VHF radios within most of Washington, northern Idaho, and northwestern
- 9 Montana in support of the Northwestern Division. Satellite and cellular
- 10 telephones are also used, in conjunction with normal commercial telephone and
- 11 fax systems. Other VHF radio communications facilities are located at Chief
- 12 Joseph Dam, Albeni Falls Dam, and Libby Dam.
- 13
- 14

	Primary Phone
Emergency Management Branch	(206)-764-3406
Northwestern Division EM	(503)-808-3902/3901/3903
- 17
- 18 Primary VHF Radio Frequencies -
- 19

Seattle District Office	163.4125 MHz	South of Seattle
Mud Mountain Dam	163.4125 MHz	Enumclaw
Lake Washington Ship Canal	163.0000 MHz/163.4125 alt.	North of Seattle
- 22
- 23 Fax # - (206)-764-3319
- 24 Email vic.k.yoshino@nws02.usace.army.mil
- 25
- 26 Other United States Army Corps of Engineers offices within the NWACP-RRT10
- 27 area of operations include Portland and Walla Walla Districts; however, the
- 28 Seattle District is the primary support to Northwestern Division and the RRT.
- 29
- 30 **Portland District Emergency Management**
- 31 Emergency Operations (24 hour) 503-808-4402
- 32
- 33 **Walla Walla District Emergency Management**
- 34 Emergency Operations Center 509-527-7146
- 35 Email CENWW-EOC@usace.army.mil
- 36 Satellite Telephone 877-559-4651 NWW EOC
- 37

1
2 The **National Interagency Fire Center** is located at the Boise, Idaho, airport and
3 owns and operates a large cache of portable radio and satellite communications
4 equipment. Although this equipment is used primarily by the United States Forest
5 Service for fighting forest fires, certain components and training may be available
6 for RRT incident response.

7
8 Phone # - (208) 387-5485 Coordination Duty Officer
9 Fax # - (208) 387-5560 Phone # - (208) 387-5644
10 Web Page– <http://www.nifc.gov/> Fax # - (208) 387-5892

11
12 The **General Services Administration** manages numerous United States
13 Government facilities. Locally, the Regional Manager coordinates RRT incident-
14 specific requirements with the appropriate General Services Administration
15 facility.

16
17 Point of Contact - Regional Manager for Emergency Management
18 Phone # - (253) 931-7508

19
20 **9501.4.1 Canadian Communications Resources**

21 **Environment Canada** is the primary contact for incidents that may affect
22 Canadian lands or waters. Contact the National Environmental Emergencies
23 Centre for communications contacts and other information necessary for incident
24 response.

25
26 Phone # - 866-283-2333
27

9501A Appendix A: Communications

1 **9501A.1 Background**

2 This section incorporates the Operational aspects of the RRT Communications
3 Plan.

4 5 **9501A.1.1 Repeater Frequency Assignments and Access Systems 6 Coordination**

7 There will likely be increasing use of multiple repeaters to serve incident response
8 communication needs in many geographic areas. Coordination among the
9 sponsors of repeater systems is needed to ensure that communication systems in
10 various areas will remain compatible, avoiding radio interference but permitting
11 portable radios from one area to supplement the radios from other areas, based on
12 guidelines developed by the American Petroleum Institute and the United States
13 Federal Communications Commission. Agency managers and planners should
14 address such interoperability issues during 2003 RRT Communications exercises.

15 16 **9501A.1.2 Command and Control Communications**

17 Incident response plans generally specify internal documentation and reporting
18 procedures in addition to properly completed ICS Forms. A bound logbook or
19 similar permanent record may be required for legal purposes. Plans typically call
20 for periodic reports from supervisors, pinpointing problems, and providing
21 information on expenditures for labor and materials. Portable computers can also
22 be used to help organize the information in such reports and transmit it over radio
23 or telephone communication channels.

24 25 **9501A.1.3 Voice Communication Procedures Standardization**

26 Standardized communications procedures, emphasizing brevity and clarity, will
27 help responders make optimum use of available communications resources. Voice
28 communication procedures should be included in all emergency response training
29 plans. Coordination of radio frequency usage will ensure that neighboring
30 response operators do not conflict with one another.

31 32 **9501A.1.4 Mobile Communications Staging Areas**

33 The selected shoreside staging areas for multi-agency operations will be directed
34 via landline, cell or satellite phone, or radio from the Incident Command System
35 (ICS) Command Post. Once a communications site has been selected, mobile

1 communications vehicles and trailers should be located no closer than 25 feet to
2 each other. The need for alternate or multiple staging areas and attendant
3 communications coverage will depend upon the extent of the area affected by the
4 incident.

5 6 **9501A.1.5 Security Awareness**

7 Radio communications, unless encrypted for secure transmission, are subject to
8 electronic surveillance and monitoring by private citizens and the public media.
9 All agencies should be security conscious before transmitting information by
10 radio that may be considered media sensitive, proprietary, or private. Good
11 judgment is the only rule that applies; however, public affairs officers should be
12 consulted for guidance in specific instances if necessary.

13 14 **9501A.1.6 Incident Command System Forms**

15 Under the ICS, the roles of different people, their lines of command, and specific
16 tasks are carefully defined. An important aspect of ICS implementation is the use
17 of standard ICS forms. For example, early in a response, the people responsible
18 for planning the response complete a Response Objectives Form. Responders
19 refer to this form when they need to review the objectives of the response. The
20 Communications Unit is responsible for preparing the following Radio and
21 Frequency Assignment Forms to provide adequate ICS documentation.

22 23 **9501A.1.6.1 Radio Frequency Assignment Worksheet (ICS Form 217)** 24 **Purpose**

25 The Radio Frequency Assignment Worksheet is used by the Communications
26 Unit Leader to assist in determining frequency allocations.

27 28 **Preparation**

29 Cache radio frequencies available to the incident are listed on the Radio
30 Frequency Assignment Worksheet. Major agency frequencies assigned to the
31 incident should be added to the bottom of the worksheet.

32 33 **Distribution**

34 The worksheet, prepared by the Communications Unit, is for internal use only.

35 36 **9501A.1.6.2 Radio Requirements Worksheet (ICS Form 216)** 37 **Purpose**

38 The Radio Requirements Worksheet, ICS 216, is used to develop the total number
39 of personal portable radios required for each Division, Group, and Branch
40 involved in the incident. It provides a listing of all units assigned and thus depicts
41 the total incident radio needs.

42 43 **Preparation of Form 216**

44 The worksheet is prepared by the Communications Unit for each operational
45 period and can only be completed after specific resource assignments are made
46 and designated on Assignment Lists. This worksheet need not be used if the

1 Communications Unit Leader can easily obtain the information directly from
2 assignment lists.

3
4 **Distribution**

5 The worksheet is for internal use by the Communications Unit, and therefore
6 there is no outside distribution of this form.

7
8 **9501A.1.6.3 Incident Radio Communications Plan Worksheet**
9 **(ICS Form 205)**

10 **Purpose**

11 The Incident Radio Communications Plan provides, in one location, information
12 on all radio frequency assignments for each operational period. ICS Form 205 is a
13 summary of information obtained from the Radio Requirements Worksheet (ICS
14 Form 216) and the Radio Frequency Assignment Worksheet (ICS Form 217).
15 Information from the Radio Communications Plan on frequency assignments is
16 also placed on the appropriate assignment list (ICS Form 204).

17
18 **Preparation**

19 The Incident Radio Communications Plan is prepared by the Communications
20 Unit Leader and given to the Planning Section Chief. Detailed instructions on
21 preparing this form may be found in ICS 223-5, the Communications Unit
22 Position Manual.

23
24 **Distribution**

25 The Incident Radio Communications Plan is duplicated and given to all recipients
26 of the Incident Action Plan including the Incident Communications Center.
27 Information from the plan is normally placed on the appropriate assignment list
28 (ICS Form 204).

29
30 **9501A.2 Glossary**

31 **Common Definitions**

32 Effective incident response depends on good communication at all levels, from
33 the initial planning, through management of personnel, equipment selection, and
34 interagency training, to the final restoration, finance and accounting, and project
35 documentation efforts. Information from the initial observation must be quickly
36 brought to the attention of responders and specific government agencies and
37 transmitted without delay to the appropriate parties. Response Team members
38 must be contacted without delay and critical information conveyed to them in an
39 efficient manner. Persons responding at the scene must have instant
40 communication with others, sometimes over a considerable distance. Response
41 managers must be able to communicate with government permit authorities and
42 with individuals and teams in the field. Coordination of transportation, material
43 support, equipment repair and other logistics matters also require good
44 communication. The use of common terms will reduce misunderstandings and
45 provide clearer messages.

46

1 This glossary describes communications terms that should be familiar to those
2 members that Plan, Manage or Respond to a Northwest Area Contingency Plan-
3 Regional Response Team incident.

4
5 **Amplitude Modulation (AM).** Refers to radio signals in which the information
6 content is created by varying the power level or amplitude of an electromagnetic
7 carrier wave. With sufficient power, this can result in longer range
8 communications.

9
10 **Antennas.** Every radio requires some sort of antenna system. For efficient
11 operation, an antenna must be electrically resonant at the intended operating
12 frequency. The length requirement dictates that larger antennas be used for lower
13 radio frequencies. As a rule, the higher the antenna, the greater its coverage area.
14 Areas designated for antenna placement should be large enough to erect the
15 largest antennas that would be used at the site.

16
17 When a radio must operate on various widely spaced frequencies within a band,
18 or where space for antennas is limited, an antenna tuning circuit may be required.
19 Antenna towers or poles may be required to raise the antenna system above the
20 surrounding terrain. A given antenna system generally radiates better in certain
21 directions than in other, and some “high gain” antennas are designed with the
22 ability to focus their output in desired directions. Antenna feed lines should be
23 kept short to reduce energy losses, particularly at high frequencies, and lines must
24 be selected to match the electrical impedance of radio equipment and antennas.
25 Special matching circuits may be required to correct poor impedance matches. In
26 cold regions, it may be necessary to design antenna systems strong enough to
27 resist the destructive effects of ice build-up. The presence of ice may also affect
28 electrical properties of the antenna and ground system resulting in shifts in the
29 resonant frequencies for the system.

30
31 **Frequency Modulation (FM).** Refers to radio signals in which the information
32 content is created by varying the wavelength or frequency of an electromagnetic
33 carrier wave. FM transmissions can eliminate much of the noise found in an AM
34 signal. Short-range communications using VHF and UHF radios commonly
35 utilize the FM mode.

36
37 **High Frequency (HF).** Includes those radio frequencies between 2 and 30MHz.
38 Generally, this method is employed when long-range communications are
39 required, i.e., beyond 100 miles. HF radio is subject to solar and atmospheric
40 conditions and requires trained radio operators, suitable HF radios, and antennas
41 for use.

42
43 **Hertz (Hz).** Refers to the number of cycles per second and is often preceded by
44 “kilo” (KHz), “mega” (MHz), or “giga” (GHz); referring to the radio frequency
45 ranges of thousands to millions of cycles per second.

46

- 1 **Single Sideband (SSB).** With ordinary amplitude modulation (AM)
 2 transmissions, audio frequency information is electronically combined with a
 3 radio frequency carrier wave. This results in a complex signal that includes an
 4 upper sideband component (which is the sum of the carrier frequency plus the
 5 audio frequencies present) and a lower sideband component (which is the
 6 difference between the carrier and the audio frequencies present).
 7
 8 With single-sideband transmissions, the AM signal is processed to remove the
 9 carrier and one of the sidebands. The signal then occupies a smaller part of the
 10 radio spectrum and uses all of its energy for the transmission of information.
 11 Single-sideband emissions are commonly used for long distance HF
 12 transmissions.
 13
 14 **Ultra-High Frequency (UHF).** Those radio frequencies between 300 MHz and 3
 15 GHz. Transmission distances over UHF are limited to line of sight and terrain;
 16 generally, point-to-point range at sea level is approximately 5 miles.
 17
 18 **Very High Frequency (VHF).** Those (frequencies) between 30MHz and 300
 19 MHz. Transmission distances over VHF are limited to line of sight and terrain;
 20 generally, point-to-point range at sea level is approximately 7 miles.

Communications Pro-Words

Pro-Word	Meaning
Break	(As a statement) A separation between portions of a message. (As a request) An interruption in conversation (usually to request use of the frequency during an emergency).
Clear	Transmission has ended; no response is expected.
Monitoring	Station is clear of last transmission; no response is expected; station will continue monitoring this frequency.
Out	My transmission is ended and no response is expected.
Over	My transmission is ended and I expect a response from you.
Roger	I have received all of your last transmission.
Say Again	Please repeat last transmission.
Words Twice	(As a request) Communication is difficult; please send every phrase twice. (As information) Since communication is difficult, every phrase in this message will be sent twice.

- 21 **Radio-Phonetic Alphabet**
 22 The phonetic alphabet is one in which each letter is associated with a particular
 23 word. The phonetic alphabet is used to ensure that certain letters or words are
 24 clearly understood.

Letter	Word	Letter	Word
A	Alpha	N	November
B	Bravo	O	Oscar
C	Charlie	P	Papa
D	Delta	Q	Quebec
E	Echo	R	Romeo
F	Foxtrot	S	Sierra
G	Golf	T	Tango
H	Hotel	U	Uniform
I	India	V	Victor
J	Juliet	W	Whiskey
K	Kilo	X	X-ray
L	Lima	Y	Yankee
M	Mike	Z	Zulu

9501B Appendix B: The 5300 (Frequency and Communications Resource Summary)

9501B Radio Frequencies

The following is a list of working frequencies used by federal, state, local, and private agencies. A list of frequencies to be used during incident reporting and response are located in the National Interoperability Field Operations Guide (U.S. Department of Homeland Security office of Emergency Communications Version 1.4).

9501B.1 Federal Government Frequencies

9501B.1.1 Coast Guard Frequencies

Group	Channel/Frequency	Purpose
Port Angeles	81A ¹ (157.075 Mhz)	Primary Working Frequency
Port Angeles	83A (157.175 Mhz)	Secondary Working
Sector Puget Sound	21A (157.05 Mhz)	Working
Sector Columbia River	23A (157.15 Mhz)	Working
Station Portland	83A (157.175 Mhz)	Working
Group Northbend	21A (157.05 Mhz)	Working
Non-Coast-Guard Ships 22A Marine	(157.100 Mhz)	Coast Guard Liaison

Note:

¹ Channel 81A shall be preempted for oil discharge removal operations whenever necessary.

9501B.1.2 NOAA Weather Radio Frequencies

May be received on multiple frequencies, depending on location.

9501B.1.3 Environmental Protection Agency

May monitor/transmit on various frequencies, depending on location.

9501B.1.4 Federal Emergency Management Agency

Bothell MERS Detachment

139.950 MHz Transmit 143.250 Receive 118.80 Tone

- 1 **9501B.2 State of Washington**
2 **9501B.2.1 Wildlife Operations**
3 Radio frequencies for wildlife response operations will be assigned by the
4 Communications Unit leader.
5
6 **9501B.2.2 Fish & Wildlife**
7 151.4150MHz DNR Common (WDOE) Branch Tactical
8
9 **9501B.2.3 Comprehensive Emergency Management Network**
10 The Comprehensive Emergency Management Network (CEMNET) system
11 utilizes base stations and repeaters controlled through the Washington State Patrol
12 microwave system.
13
14 Lo Band Channel F1 transmits on 45.200 MHz
15 Lo Band Channel F2 transmits on 45.360 MHz
16 Lo Band Channel F3 transmits on 45.480 MHz
17
18 Channel F3 is the primary contact channel for the Washington State Emergency
19 Management Department.
20
21 **9501B.2.4 Search and Rescue**
22 The Search and Rescue frequency transmits on 155.160MHz and is also managed
23 by the Emergency Management Division.
24
25 **9501B.2.5 Law Enforcement Radio Net**
26 The Law Enforcement Radio Net operates on 155.37 MHz and is a mutual
27 frequency used by state and local law enforcement agencies.
28
29 **9501B.2.6 On-Scene Command and Coordination Radio**
30 The On-Scene Command and Coordination Radio operates on 156.135 MHz.
31
32 **9501B.2.7 Department of Natural Resources**
33 State DNR transmits on 151.295 and receives on 159.420 MHz.
34
35 **9501B.3 State of Oregon**
36 **9501B.3.1 Department of Environmental Quality**
37 The State of Oregon Department of Environmental Quality utilizes the Oregon
38 State Fire Net during a pollution or potential pollution incident.
39
40 The State Fire Net transmits on 154.280 MHz.
41

1 **9501B.3.2 Maritime Fire and Safety Association Columbia River**
 2 **Communication System**

Channel	Description	Transmit	Receive	RX
	Marine Ch 16	156.800	156.800	CSQ
	Marine Ch 11	156.550	156.550	CSQ
	Marine Ch 13	156.650	156.650	CSQ
	Marine Ch 14	156.700	156.700	CSQ
	Marine Ch 18A	156.900	156.900	CSQ
	Marine Ch 80	157.025	157.025	CSQ

3
 4 **9501B.4 State of Idaho**

5 **9501B.4.1 State of Idaho Office of Emergency Management**

Transmit	Varies
Receive	Varies

6
 7 **9501B.4.2 National Interagency Fire Center**

Transmit	Varies
Receive	Varies

8
 9 **9501B.5 Private/Commercial Frequencies**

10 **9501B.5.1 Clean Sound Cooperative**

Transmit	454.000 MHz	Ch 1	Internal Comms
Receive	459.000		

11
 12 **9501B.5.2 Marine Safety Response Corporation**

150.9800 MHz	S	Ch 1	Internal Comms
150.9800MHz	TX	Ch2	Internal Comms
154.5850Mhz	RX		
159.4800MHz	S	Ch3	Internal Comms
159.4800MHz	TX	Ch4	Internal Comms
158.4450MHz	RX		
454.0000MHz	TX	Ch8	Internal Comms PL 100
459.0000MHz	RX		PL 136

13
 14 **9501B.5.3 FOSS Telecommunications Network**

15 All Foss Maritime vessels have VHF-FM capability. Operating tugs and tank
 16 barges monitor the appropriate VHF-FM channel for the house/working
 17 frequency as denoted below.
 18

1

State	Foss Maritime Location	Channel	Frequency (MHz)
WA	Seattle	7A	156.350
	North Sound	7A	156.350
	Everett	18A	156.900
	Tacoma	18A	156.900
	Port Angeles	7A	156.350
OR	Portland	10A	156.500
	Astoria	10A	156.500

2

3 Ocean and coastwise tugs, while at sea, monitor single sideband radio, and
 4 standby on channel 8B (8297.000Khz). Foss Maritime tugs also monitor the
 5 following frequencies:

SSB	2182.0000KHz	International Distress
VHF	156.800MHz	International Distress
Bridge to Bridge	156.650MHz	

6

7 The following Single Sideband radio frequencies are available aboard all Foss
 8 ocean-going tugs and shoreside base stations for conducting private
 9 communications IAW 47 CFR 80.373.

2182.0000KHz	8297.000KHz
4149.000KHz	12353.000KHz
8294.000KHz	16534.000KHz

10

11 **9501B.5.4 The Petroleum Radio Service**

12 47 Code of Federal Regulations Part 90.65 designates the frequencies listed below
 13 as available for use in oil spill containment and cleanup operations.

Frequency (MHz)	Mode/PL Tone	Use
25.040	simplex	Base/Mobile
25.080	simplex	Base/Mobile
36.250	simplex	Base/Mobile
41.710	simplex	Base/Mobile
150.980	simplex/repeater, Pair 1 103.5	Base/Mobile
154.585	repeater receive, Pair 1	Mobile
158.445	simplex or repeater receive, Pair 2 103.5	Mobile
159.480	simplex or repeater transmit, Pair 2	Base/Mobile
454.000	simplex or repeater transmit, Pair 3 103.5	Base/Mobile
459.000	repeater receive, Pair 3	Base/Mobile

14

15 **9501B.5.5 Amateur Radio Emergency Services**

16 Volunteer Communicators and various frequencies are available for emergency
 17 use. Contact ARES via the Washington State Emergency Management Division
 18 or County Emergency Management offices.

19

1

2 **9501B.6 International Frequency Listing**

3 **9501B.6.1 Environment Canada**

4 Environment Canada coordinates incident response with the United States Coast
5 Guard and Environmental Protection Agency in the lands and waters of British
6 Columbia.

150.980MHz	154.585MHz	Tone 103.5
------------	------------	------------

7

8 **9501B.6.2 Future International Contacts**