ESF 2 – Appendix 1: Communication Systems Conditions

Purpose

This appendix supports the ESF 2 – Communications Annex by elaborating on the capabilities and assignments for use of the communications systems available; this appendix details the conditions for the use and coordinated integration of such systems.

Concept of Operations

Tabs A-E focus on the frequencies, channels, and assignments of various communications systems to promote interoperability, direction, control, and coordination. Tab F focuses on the voice and data communication systems; while Tabs G-I identify the crucial groups, commissions, committees, and other organizations actively involved in the continual improvement of ESF 2-related functions and capabilities.

Tab A: Priority Channels for Interoperability

Very-High Frequency (VHF)

On-scene (OSCCR):	156.135 MHz
Control and Coordination	
Search and Rescue (SAR):	155.160 MHz
Law Enforcement (LERN):	155.370 MHz
Fire (FIRECOM):	153.830 MHz
Mutual Aid	
Fire (DNR Common):	151.415 MHz
EMS/Trauma (HEAR): **(Medical Control)**	155.340 MHz
Direction and Control	
CEMNET[1]	
Channel F1:	45.20 MHz
Channel F2:	45.36 MHz
Channel F3:	45.48 MHz

High Frequency (HF)

Washington Emergency Net:	*Primary*	*Alternate*
(RACES/ARES)	3.985 MHz	7245 MHz

Ultra-High Frequency (UHF)

EMS/Trauma (MED-7):	TX 463.150 MHz
(Local On-scene Medical Control)	RX 468.150 MHz
EMD/Trauma (MED-1):	TX 463.000 MHz
(State Medical Control)	RX 468.000 MHz
Talk-around (MED-1):	463.000 MHz

[1] See Tab B for Further details concerning CEMNET.

Ultra-High Frequency (800 MHz NPSPAC)[2]

National Calling Channel (ICALL)[3]:	821/866.0125 MHz	Channel 601
National Working Channel (ITAC-1)[4]:	821/866.5125 MHz	Channel 639
National Working Channel (ITAC-2):	822/867.0125 MHz	Channel 677
National Working Channel (ITAC-3):	822/867.5125 MHz	Channel 715
National Working Channel (ITAC-4):	823/868.0125 MHz	Channel 753
Multi-agency Coordination[5]		
Tactical, Fire/EMS (STATEOPS-1):	822/867.5375 MHz	Channel 716
Tactical, Fire/EMS (STATEOPS-4):	822/867.6125 MHz	Channel 722
Tactical, Law Enforcement (STATEOPS-2):	822/867.5625 MHz	Channel 718
Tactical, Law Enforcement (STATEOPS-5):	822/867.6375 MHz	Channel 724
Tactical, Local Government/Others (STATEOPS-3):	822/867.5875 MHz	Channel 720

[2] All ten interoperability channels cited above shall be controlled by sub-audible tone 156.7 Hz. All interoperability repeaters shall have an input and output tone of 156.7 Hz.

[3] The ICALL channel shall be used to contact other users in the Region for the purpose of requesting incident related information and assistance. If necessary, the calling party will be asked to move to one of the ITAC channels for continuing incident operations or other interoperability communication needs. This channel can be implemented in full repeat mode.

[4] The ITAC channels are to be used primarily for coordination activity between different agencies in a mutual aid situation, or emergency activities of a single agency.

[5] Incidents requiring multi-agency participation will be coordinated over these channels by the agency controlling the incident. These channels can be implemented in full repeat mode.

Tab B: Comprehensive Emergency Management Network (CEMNET)

CEMNET serves as the "PRIMARY" back-up communications system for direction and control of emergency operations, statewide.

CEMNET is a low band VHF system employing twelve (12) remote mountaintop base stations. The 12 stations are operated and controlled at the state Emergency Operations Center (EOC) through the Washington State Patrol microwave radio system. The 12 base stations and call signs are:

Capitol Peak	**KOM575**
Skamania Mountain	**WNBQ335**
Mount Spokane	**KOM570**
Clemans Mountain	**WNUD825**
Joe Butte	**KBI807**
Galbraith Mountain	**WNBQ380**
Burch Mountain	**KOM560**
Scoggins Hill	**WNUB969**
Tunk Mountain	**WNBW539**
Octopus Mountain	**WNUF654**
Baw Faw	**WPKE716**
Squak Mountain	**WPKE718**

The system controls/operates three (3) channels supporting state and local government operations. Each channel has been assigned for use in one of five CEMNET operating regions[6]. The channels are monitored on a 24-hour basis by the State Duty Officer; callsign "State EOC".

REGION	CHANNEL	FREQUENCY
Northwest and Northeast	F1	45.20 MHz
Southwest and Southeast	F2	45.36 MHz
Central	F3	45.48 MHz

[6] Private Line (PL) tone on all channels is 127.3 Hz.

Each local jurisdiction (county/city) with CEMNET may operate on the assigned region channel for local operations. The following table indicates the region/channel assignment to be used by local jurisdictions.

CEMNET Region and Channel Assignments

NORTHWEST (F1 - 45.20 MHz)	SOUTHWEST (F2 - 45.36 MHz)	CENTRAL (F3 - 45.48 MHz)	NORTHEAST (F1 - 45.20 MHz)	SOUTHEAST (F2 - 45.36 MHz)
Island Co.	Clark Co.	Adams Co.	Ferry Co.	Asotin Co.
Jefferson Co.	Cowlitz Co.	Benton Co.	Lincoln Co.	Columbia Co.
Kitsap Co.	Grays Harbor Co.	Chelan Co.	Okanogan Co.	Garfield Co.
San Juan Co.	King Co.	Douglas Co.	Pend Oreille Co.	Whitman Co.
Skagit Co.	Lewis Co.	Franklin Co.	Spokane Co.	
Snohomish Co.	Mason Co.	Grant Co.	Stevens Co.	
Whatcom Co.	Pacific Co.	Kittitas Co.		
Clallam Co.	Pierce Co.	Klickitat Co.		
	Skamania Co.	Yakima Co.		
	Thurston Co.	Walla Walla Co.		
	Wahkiakum Co.			
ESCA	Lacey			
Auburn	Puyallup			
Bellevue	Shelton			
Kent	Tacoma			
Mercer Island	Kirkland			
Port Angeles				
Redmond				
Seattle				
Snoqualmie				

Local jurisdictions listed above are authorized to use the assigned region channel for local operations. Each local license holder is authorized to operate up to five (5) mobiles.

Tab C: State Emergency Communications Using Radio Effectively (SECURE)

SECURE serves as a "secondary" limited back-up communications system for direction and control use within the state, as needed. It also serves as a capability to communicate with FEMA Region X, Idaho, and Oregon.

SECURE is an HF radio system employing two stations located in the state Emergency Operations Center (EOC), the Spokane EOC, and a mobile station operated by the Military Department.

Frequencies authorized by FCC and FEMA for use on the system are:

Primary (Day):	5.192 MHz
Primary (Night):	2.411 MHz
Primary (Day - Interstate):	7.805 MHz
Primary (Night - Interstate):	2.326 MHz
Other assigned frequencies:	2.801 MHz
	2.414 MHz
	2.587 MHz
	7.935 MHz

Frequencies are operated upper sideband (USB).

A local jurisdiction EOC will operate on this system when the need is identified, and the capability is provided by the state EMD Telecommunications and Warning Program Manager.

Tab D: Radio Amateur Civil Emergency Services (RACES)

RACES serves as a "tertiary" back-up communications system for direction, control, warning, and coordination, statewide.

RACES is the employment of amateur radio operators/equipment in support of state and local government emergency operations. Amateur radio support, RACES, is established and available at the state Emergency Operations Center (EOC). Systems that can be employed are HF (voice and Packet), VHF (2 meter), VHF (Packet), and UHF.

The frequencies most commonly used to support state EOC operations are listed below. Other frequencies within the amateur band, which are not listed, will be coordinated and used as needed. The call sign for the state EOC RACES is W7EMD (State RACES Radio Officer).

HF - Used statewide by all amateur radio operators for any/all emergencies.	
Voice (as needed):	3985 kHz
Pactor (24-hours):	3624 kHz
VHF (2 meter)	
Primary Frequency (P.L. 136.5 HZ)	145.37 MHz
Olympia Repeater	145.47 MHz
Olympia Repeater	146.80 MHz
Olympia Repeater	145.15 MHz
Baw Faw Mountain Repeater	147.06 MHz
VHF (220 MHz band)	
Olympia Repeater	224.46 MHz
UHF (440 MHz band)	
Olympia Repeater	444.275 MHz
Olympia Repeater	444.45 MHz
VHF (PACKET) - Call Sign W7EMD, Air Mail via Winlink National/Global Radio Email Network.	
ELYSSA Node (Primary)	145.630 MHz
SMTN Node (Alternate)	
VHF (APRS) – Call Sign W7EMD-3 144.390 MHZ	
Echolink RoIP Amateur Radio Network	
Call sign: W7EMD-L. Link on UHF 445.825 MHz (Simplex) Node No. 43173	
Call sign: W7EMD, SysOp RACES Radio Room Node No. 28180	

Tab E: Other Frequencies Monitored

To provide a list of other frequencies which the state EOC can monitor or employ, as needed.

The scope of this list focuses on those systems and frequencies which state EMD, through agreement with other agencies, can monitor or access during times of emergencies and/or disasters.

Frequency Assignments

High Frequency	
State Area Command (STARC):	4.580 MHz (Pri)
	4.520 MHz (Alt)
US Coast Guard:	2670 KHz
	2103.5 KHz
Civil Air Patrol:	4.585 MHz (Pri)
	4.582 MHz (Alt)
FEMA Region 10: **(FNARS)**	2.320 MHz
	4.780 MHz
	7.348 MHz
	10.493 MHz
	11.801 MHz
	11.957 MHz
	12.216 MHz
	14.450 MHz
	17.649 MHz
Very High Frequency (VHF)	
Department of Natural Resources	
• *Common:*	151.415 MHz
• *State:*	RX 159.420 MHz
	TX 151.295 MHz
• *CAPTEL:*	RX 159.285 MHz
	TX 151.430 MHz
• *Aeronautical Multi-comm:*	122.900 MHz (Initial Contact)
	122.850 MHz (Air-to-Air/Gnd)

Civil Air Patrol:	148.150 MHz
NOAA Weather Radio:	162.550 MHz
	162.475 MHz
NLECS (EAS radio relay only): **(National Law Enforcement Communications System)**	155.475 MHz
US Coast Guard (Mar. Ch. 81A): **(Pollution Response Coordination Channel, On-scene use only)**	157.075 MHz
FEMA MERS Operations	RX 150.6625
	TX Net 50 141.37
	NB Digital
Ultra-High Frequency (UHF)	
State Agency Emergency Net	DOT 800 MHz, System 2, Group 2

Tab F: Other Voice/Data Systems

To provide a list of dedicated voice/data systems that would be employed by the state EOC, as needed.

The scope of this list focuses on the landline systems currently used by the state EMD to support any/all emergencies and/or disasters.

National Warning System (NAWAS): (see Appendix 2, Warning, for additional information about NAWAS)

1. Consists of 31 local Primary Warning Points and 15 Duplicate Warning Points located in EOCs.
2. State Warning Point:
    a. Primary - Emergency Management, state EOC, Camp Murray
    b. Alternate - Washington State Patrol (WSP) Communications Center, Yakima
3. NAWAS, if available, in addition to supporting warning requirements, will be employed as an additional direction, control, and coordination capability to those jurisdictions having a NAWAS terminal.

A Central Computerized Enforcement Service System (ACCESS): (see Appendix 2, Warning, for additional information on use of ACCESS)

1. Consists of a web-based data network supporting state and local law enforcement agencies. This network is managed by WSP ACCESS Operations and is supported through the WSP microwave radio system and leased circuits, statewide.
2. ACCESS is employed by the state EMD for dissemination of warning, alert, and notification information to local jurisdiction emergency managers. EMD ACCESS terminal addresses are OLYEM or OLEM2.
3. ACCESS, if available, in addition to supporting the above needs, will be employed as an additional direction, control, and coordination capability to all jurisdictions.

Energy Northwest and Columbia Generating Station Special Circuits: All circuits are supported through the WSP microwave radio system and GTE leased lines.

1. One (1) - Dial "400" CRASH line
2. One (1) - Select Dial line
3. One (1) - Facsimile line

4. One (1) - Public Information Officer (PIO) Select Dial line

U.S. Department of Energy, Richland - One (1) - Dial "400" CRASH line supported through the WSP microwave radio system and GTE leased lines.

Umatilla Chemical Depot, Chemical Stockpile Emergency Preparedness Program:

1. One (1) - Automatic Ringdown Line
2. One (1) - Select Dial line
3. Two (2) - Facsimile lines
4. One (1) - PIO Select Dial line
5. Two (2) - Tie lines

Tab G: Telecommunications Coordinating Committee (TCC)

The Telecommunications Coordinating Committee (TCC) is a committee that was established to advise the Director, Emergency Management Division of the telecommunications resources that exist within the state and their availability for supporting emergency response, recovery, and restoration activities particularly when the telecommunications systems infrastructure has been impacted as a result of an emergency or disaster situation.

Members of the TCC are comprised of representatives from both government and industry telecommunications providers and administrators. Current standing members include:

- Washington State Military Department, Emergency Management Division
- Washington State Department of Information Services
- Washington State Utilities and Transportation Commission
- Washington State Patrol
- Washington State Department of Transportation
- Washington State Department of Natural Resources
- Washington National Guard
- Department of Homeland Security, ESF 2 Liaison from GSA Qwest
- AT&T
- Verizon

Other government agencies and commercial telecommunications providers may be requested to participate as necessary.

Should a disaster situation occur which severely impacts the telecommunications and information systems within the state, member organizations may be requested to provide a representative to the ESF 2 cell to assist in monitoring and addressing critical telecommunications and information system issues.

Tab H: Washington Computer Incident Response Center (WACIRC)

The Washington Computer Incident Response Center (WACIRC) is a cooperative effort among state agencies and other governmental jurisdictions to collect, evaluate and disseminate information related to network-based security risks in order to defend the state's computer systems. WACIRC operates as a focal point for agencies as they communicate information and develop guidelines and best practices related to cyber security. WACIRC, when requested by the state EMD, may advise EMD on cyber security during all four phases of emergency management.

All DIS Customers who use the State Governmental Network (SGN) are required to appoint a representative to the WACIRC. All DIS Customers who use the Intergovernmental Network (IGN) are requested to appoint a representative to the WACIRC.

Current WACIRC organizational structure includes six subcommittees:

1. Reporting Subcommittee
2. Communications Subcommittee
3. Joint Intergovernmental Website Subcommittee
4. Law Enforcement Subcommittee
5. Wireless Subcommittee
6. Security Training Subcommittee WACIRC website is at http://wacirc.wa.gov

Tab I: Washington Emergency Communication Coordination Working Group (WECCWG)

A community of professionals and experts from the public, private and tribal sectors within emergency communications across the Pacific Northwest who work together to provide reliable and resilient emergency communications throughout Washington state in times of crisis.

Goals of this outreach effort:

1. Understand the threats we face in Washington state

- Natural (Earthquake, Wildfires, Wind and Ice Storms, Flooding, Avalanche, Landslide, Volcano, Tornado, Tsunami)
- Technological (Cyber, Hazardous Materials, Pipelines, Public Health, Terrorism, Urban Fire, Dam Safety, Public Events, Outages)

2. Know one another

- Establish and maintain active relationships
- Understand the capabilities and limitations of what each entity provides to the larger picture
- Strive to know our interdependencies
- Identify and understand private, tribal and public sector response priorities & timelines
- Know who, how and when to call
- Develop the expectations and ability to share situational awareness among partners

3. Plan and exercise together

- Prepare partners with realistic scenarios and expectations
- Figure out interoperability challenges before disasters strike
- Overcome information sharing challenges
- Identify/establish and refine policies, guidelines and/or agreements for companies, governments and tribes to work together

4. Establish and maintain Washington state ESF 2 roster

- Document our experts, how to reach them and when/where they will be needed
- Ensure all partners understand ICS/NIMS and ESF 2
- Recommend trainings and job aids
- Ensure all partners understand activation levels, procedures and limitations for various EOCs/ECCs
- Review/update the CEMP, ESF 2 Annex and other public communication documents

5. Seek out and engage other contributors

- Routinely identify other contributors
- Provide opportunities for expanded participation
- Recruit other participants
- Market and showcase WECCWG