

# Simulated Flood Scenario

## a Communications Exercise

### Authors

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### Goals

- Establish VHF/UHF voice communication
  - Adapt to changing operating conditions and frequencies
  - Practice simplex relaying
- Establish VHF data communications
  - Leverage APRS across a majority of participating stations
  - Originate APRS objects as reported by rovers
  - WINLINK for long form messages and attachments
- Use portable or emergency power
- Have fun and engage with other operators

### Scenario

Storms and heavy rains have exposed several areas in the county to flood risk and taken power and internet offline in outer areas of the county. ACS is deployed to observe and report on vulnerable areas, road closures, and immediate

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communications for distress situations where cell phones are unavailable or overloaded.

## **Roles**

### **Net Control (2x)**

Operating from W7DG LCARA Clubhouse

- 46.18281695854391, -122.95842906717274
- 147.100 MHz + PL 114.8 Primary Repeater
- 224.140 MHz – PL 114.8 W7DG Club Repeater
- 144.440 MHz Primary Simplex
- 444.900 MHz + PL 114.8 Secondary Repeater
- 144.390 APRS Digipeater / Operation Control
- 144.920 Winlink / N7DEM

### **EoC Liason**

Operation from EoC . Hall of Justice

- 46.143420051058484, -122.91689133485082
- 224.140 MHz – PL 114.8 Link to Net Control
- 144.920 Winlink

### **Rover Stations (2-3)**

Mobile stations, moving to predefined locations and OTA/map provided locations to report tactical status

- 147.100 MHz + PL 114.8 Primary Repeater

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- 144.390 APRS Beacon
- 144.440 MHz Primary Simplex
- 444.900 MHz + PL 114.8 Secondary Repeater

When checking into the simulation net, rovers will be **assigned a tactical call** for the duration of the exercise: ROVER 1, ROVER 2, etc. Please remember to identify your transmissions at least every 10 minutes with FCC callsign.

During the exercise, some roads may be in “simulated closure” and alternative routes should be requested.

When in motion, rover stations should focus their primary attention on driving. Don’t return a call when driving unless it is safe to do so.

At each location, Net Control will call for each rover to give a site report including:

- Location
- Road status / traversability
- Stream measurement (where applicable)

During the exercise, rover stations may report simulated distress conditions which will be noted by net control and others.

## **Fixed/Mobile**

Stations operating from a single location for the duration of the exercise. Stations should prefer portable or backup power sources.

- 147.100 MHz + PL 114.8 Primary Repeater
- 144.440 MHz Primary Simplex – RELAY where possible
- 444.900 MHz + PL 114.8 Secondary Repeater

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When other stations are checking in or providing reports, check the repeater input (“reverse” or “simplex”) and **make note of what other stations can be directly heard from your location.**

Net control will call station reports twice during the exercise:

- Location
- Communication capabilities
- Power status
- Health / safety, transportation capabilities (fuel, etc)

Stations may request a tactical call when checking in, particularly if they expect to be a relay station.

## Operating Guidelines

All stations will yield to the handling of true emergency traffic.

Avoid the word “**EMERGENCY**” when describing exercise situations. **All participating stations should end exercise-related communications with “this is an exercise”.**

Stations checking in to the simulated emergency net are expected to remain on frequencies throughout the exercise unless dismissed by net control. Avoid QSY primary frequency until directed by net control (or via relay).

## APRS

Digital (packet) radio is important in emergency situations because it is low bandwidth, generally accessible, and precise.

All participating stations are *encouraged* to use APRS during the exercise, preferring a client with message and mapping capabilities (like APRSdroid or Yaesu FTM-400).

Rover stations may get by with a simple TX-only beacon such as the Anytone 878 and fixed stations can use aprs.fi (assuming internet is up).

Use path **WIDE1-1** and **avoid excessive beaconing** during the exercise to keep the APRS network clear. Use at least a **3 minute delay** or prefer to manually beacon at points of interest

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## Timeline

### EoC – Emergency Operations Center

Immediate information flowing from EoC station to LCARA clubhouse via

- 144.920 MHz WINLINK messaging (AX.25 Packet)
  - Send
    - 0900 Mission engagement – scenario overview, operating frequencies, engaged agencies, initial locations
    - 0915 Mission update – updated list of simulated road closures?
    - 1000 Mission update – List of monitored locations (1)
    - 1145 Disengagement
  - Recieve: Hourly check-in reports from net control
    - 1000 – list of all checked in stations and approximate locations
    - 1100 – Updates from requested monitored locations
    - 1200 – Final report / status
- 224.140 MHz voice

### Net Control – LCARA Clubhouse

- 0900 Rovers/mobiles meet at LCARA Clubhouse; Coffee, briefing, distribute information
- 0910-0930 (When mission engagement is received...)
  - 147.100 MHz Announce exercise
  - Distribute initial locations to rovers

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- Engage APRS station N7DEM-7 with known objects and locations
- 0930 Beginning of Tactical exercise
  - 147.100 MHz fixed station check in, disseminate operating frequencies and situational summary
  - Mobile / rover stations depart
    - Check in from vehicle
- 0945 Fixed station status checks
- At “end of checkins”
  - 144.920 MHz Send net report via WINLINK (NU7D@winlink.org)
- 1000 147.100 MHz Rover stations report on first site
- 1010 Advise QSY 144.44 MHz / secondary on 444.900 MHz (repeater)
- 1015 144.44 MHz Distribute 2<sup>nd</sup> locations to rover stations
  - Fixed / mobile stations relay where needed
  - 147.100 will be “dark”, avoid traffic here to simulate repeater outage
- 1045 144.44 MHz Rover stations report on second site
  - Fixed / mobile stations relay where needed
  - 144.39 MHz APRS beacon if capable
- 1055 Advise QSY 444.9 MHz (repeater) / secondary on 144.44 MHz
- 1100 444.900 MHz Distribute 3<sup>rd</sup> locations to rover stations
  - Stations without 70cm capability relay via 144.44 MHz simplex
- 1115 444.900 MHz Fixed station status checks
- 1130 444.900 MHz Rover stations report on third site
  - Fixed / mobile stations relay where needed

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- 1145 444.900 MHz Final reports, closing

## **Rovers**

- 0900 Rovers/mobiles meet at LCARA Clubhouse; Coffee, briefing, distribute information
- 0910 Prepare stations
  - Enable APRS Beacon
  - Receive first location via paper/map
- 0930 147.100 MHz Check in when rovers are called for
  - Tactical call assignment ROVER-n
  - Drive to first location and await instruction
- 1000 147.100 MHz Report on First site when called
- ~1010 QSY 144.44 MHz / secondary on 444.900 MHz (repeater)
- 1015 144.44 MHz Distribute 2<sup>nd</sup> locations to rover stations
  - Drive to second location and await instruction
- 1045 144.44 MHz Simplex Report on second site when called
  - Due to simplex, net control may rely on a relay
  - Location
  - Road status / traversibility
  - Stream measurement (where applicable)
- ~1055 QSY 444.9 MHz (repeater) / secondary on 144.44 MHz
- 1100 444.900 MHz Distribute 3<sup>rd</sup> locations to rover stations
  - Stations without 70cm capability relay via 144.44 MHz simplex



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- Drive to third location and await instruction
- 1130 444.900 MHz Report on third site
  - Location
  - Road status / traversability
  - Stream measurement (where applicable)
- 1145 444.900 MHz Final report, check-out

## **Fixed/Mobile**

- 0930 147.100 MHz simulated emergency net checkins
- 0945 147.100 MHz fixed station status checks (see Roles)
- ~1010 QSY 144.44 MHz / secondary on 444.900 MHz (repeater)
  - Provide relay to ROVER / Net control via simplex as needed
- ~1055 QSY 444.9 MHz (repeater) / secondary on 144.44 MHz
- 1115 444.9 MHz Fixed station status checks
  - Changes in status
  - Direct contacts (when other stations are checking in, listen on repeater input and note S-level)
- 1145 444.900 MHz Final report, check-out

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## Participants

- AD7UF – Charles (9/5 W7MSH net)
- KG7IRB – Mike (9/5 W7MSH net)
- NU7D – Randy
- KB7AYY – Connie
- N2RJR – Ralph
- W7EWB – Ed in St. Helens <[eblboregon@yahoo.com](mailto:eblboregon@yahoo.com)> (9/13 N7DEM net)
- WA7PTM – Steve, Clark Co.

## Appendix A: Rover Locations

Rovers may be asked to report to 3 of the following 12 locations throughout the exercise. Pay attention to simulated road closures or other hazard conditions.

Code	Name	Location	Lat	Long
E-1	EoC / Cowlitz River	Kelso	46.143930	-122.915873
E-2	Fisher's Lane pump station	Kelso	46.150490	-122.914582
E-3	Alpha Dr.	Lexington	46.166202	-122.915610
E-4	Riverside Park	Lexington	46.193157	-122.905382
E-5	Castle Rock Fairgrounds	Castle Rock	46.274796	-122.914879
E-6	Sandy Bend	Castle Rock	46.221359	-122.912506
E-7	Silver Lake	Toutle	46.318882	-122.774564
W-1	34 <sup>th</sup> Av. Slough	Longview	46.153691	-122.972252
W-2	46 <sup>th</sup> Av. Slough	Longview	46.167750	-122.996152
W-3	Coal Creek Slough	Longview	46.179740	-123.026065
W-4	Willow Grove 1 (River)	Longview	46.177400	-123.097000
W-5	Willow Grove 2 (Slough)	Longview	46.187138	-123.095237

“E” – East locations are listed from South, generally headed North up WA-411 West Side Hwy.

“W” – West locations are listed from East, generally headed West on WA-4 Ocean Beach Hwy.

## Appendix B: Reference Links

<https://www.co.cowlitz.wa.us/1317/Frequently-Flooded-Areas>