

This Summary will provide you with the essential information you need for the Western States Endurance Run. A copy of it will be in your operations kit, which you should pick up at the Event Control site on your way up to your assignment. You may have questions and that 's OK, just get your questions addressed before heading up to your aid station location. Email radio@wser.org with any questions.

SYSTEM FREQUENCIES

Channel Number	Repeater Name	RX Frequency	TX Frequency	CTCSS (PL)
1	Squaw	443.975	448.975(+)	114.8
4	Bald-VHF	146.625	146.025(-)	123.0
6	Cross Band X	443.900	443.900	162.2
7	Cross Band Y	443.125	443.125	162.2
8	Foresthill 1	146.355	146.955(+)	107.2
9	AUB-VHF1	145.430	144.830(-)	162.2
10	AUB-UHF	440.575	445.575(+)	162.2
13	Simplex	146.520	146.520	NONE
14	Mt. Vaca (Backup System)	147.195	147.795(+)	123.0
15	Foresthill 2	146.745	146.145(-)	156.7
16	Foresthill 3	443.225	448.225(+)	110.9
17	AUB-VHF2	145.270	144.670(-)	156.7

Channel Number	Location	Frequency	Tone
20	Event Calling	146.505	NA
21	NCS use only	147.495	NA
22	FH and UP course (primary)	147.555	NA
23	FH and UP course (secondary)	146.445	NA
24	FH and Down course (primary)	146.465	NA
25	FH and Down course (secondary)	147.480	NA

INITIAL CHANNEL ASSIGNMENTS

The following table provides your initial channel assignment, based on our previous experience and known system coverage. Please adhere to these assignments for unless directed otherwise by NCS.

Checkpoint	Checkpoint Code	Radio Used?	Primary Channel	Secondary Channel
Lyon Ridge	LR	Yes	Squaw (Channel 1)	Bald VHF (Channel 4)
Red Star	RS	Yes	Bald VHF (Channel 4)	AUB-VHF 1 (Channel 9)
Duncan Canyon	DC	Yes	Bald VHF (Channel 4)	AUB-VHF 1 (Channel 9)
Robinson Flat	RF	Yes	Bald VHF (Channel 4)	AUB-VHF 1 (Channel 9)
Miller's Defeat	MD	Yes	Bald VHF (Channel 4)	AUB-VHF 1 (Channel 9)
Dusty Corners	DU	Yes	Bald VHF (Channel 4)	AUB-VHF 1 (Channel 9)
Last Chance	LC	Yes	Bald VHF (Channel 4)	AUB-VHF 1 (Channel 9)
Devil's Thumb	DT	Yes	Bald-VHF (Channel 4)	AUB-VHF 1 (Channel 9)
El Dorado Creek	ED	Yes	Cross Band Y (Channel 7)	SIMPLEX to MB (CH 23)
Michigan Bluff	MB	Yes	AUB-VHF 1 (Channel 9)	Bald VHF (Channel 4)
Foresthill	FH	Yes	Foresthill 2 (Channel 15)	AUB-VHF 1 (CH 9)
Dardanelles (Cal I)	DD	Yes*	Foresthill 2 (Channel 15)	Bald VHF (Channel 4)
Peachstone (Cal II)	PS	Yes	Foresthill 2 (Channel 15)	Bald VHF (Channel 4)
Ford's Bar (Cal III)	FB	Yes*	AUB-VHF 1 (CH 9)	Bald VHF (Channel 4)
Rucky Chucky	RC	Yes	AUB-VHF 1 (CH 9)	Bald VHF (Channel 4)
Green Gate	GG	Yes	AUB-VHF 1 (CH 9)	AUB-VHF 2 (CH 17)
Auburn Lake Trails	AL	Yes	AUB-VHF 1 (CH 9)	AUB-VHF 2 (CH 17)
Quarry Road	QR	Yes	AUB-VHF 1 (CH 9)	AUB-VHF 2 (CH 17)
Pointed Rocks	PR	Yes	AUB-VHF 1 (CH 9)	AUB-VHF 2 (CH 17)
No Hands Bridge	NH	Covered by WebCast Team		
Robie Point	RP	Covered by WebCast Team		
Finish Line	FL	Covered by WebCast Team		

Table 3 - Initial Channel Assignments

See Appendix #2 for the digital modes used at each checkpoint.

DROP REPORTING

All stations will report all runners who drop via their voice channels. Information should include the location, number, time of the drop, and a reason ("unknown" is an acceptable reason ... we just want to know that you don't know). Drops should be reported as soon as you receive them (real time¹) from the aid station captain. Please also keep a written list of drops on the timer's form in your operations kit and turn them in at Event Control when you have closed. If you are a WinLink equipped aid station, please don't send DROPS via WinLink – just VOICE. An exception to this might be if voice is unusable.

"REAL TIME" REPORTS

Except for Lyon Ridge, Red Star or any direct-entry locations, the aid station timers will be recording the arrival times for all runners. To reduce the voice bandwidth and time required to report arrivals, we will use the following procedure.

1. The timer sheet holds 20 entries.
2. If the timer fills a sheet in less than 15 mins, collect it and report all twenty.
3. If 15 mins elapses after the first runner on the sheet and the sheet is not full, have the timer start a new sheet with the next arriving runner, and transmit the partial sheet.
4. This allows NCS to get the runner numbers to WEB CAST in time. Our GOAL is within 30 mins of a runner getting to a checkpoint it is reported to the WEB CAST for the WORLD to see. Reporting within 15 mins helps ensure we can meet the overall goal of 30 mins.
5. Please make sure the time sheets are clear to read.
6. For top 10 males and top 10 females, no matter what their bib numbers say, please report in real time¹. [new] If you are a WinLink equipped aid station, please also send these via VOICE (WinLink and VOICE both).
7. For the last 10 runners, please report them in real time¹. [new] If you are a WinLink equipped aid station, please send via WinLink only (no voice).

¹Realtime reporting for top 10 males, top 10 females and also the last 10 runners means send the data as runners come in (or drops occur), don't wait for 15 mins to elapse!

For real time reporting of top 10 male and top 10 females and also the last 10 runners, it's possible to use many timing sheets (up to 30) for reporting of single runners (the real time part). Therefore you will be receiving extra timing sheet pads for your aid stations, to cover the situation of the aid station not having enough sheets for this "new" procedure (please let your aid station timers know about this).

TRANSMISSION OF REPORTS

When you have one or more forms to transmit, call NCS and advise them how many runners you want to report. If it is small, NCS may just take them on the channel you are assigned. If there are enough to tie up the channel, NCS will direct you to a secondary channel.

Call NCS on the secondary channel you were assigned and follow instructions. You will likely be directed back to your primary channel when your traffic is clear.

After transmission, annotate the timer's form with the date/time of transmission and the channel you used (see Table 1) and place them in the return envelope provided in your operations kit.

EMERGENCY PROCEDURES

We define an emergency as any situation which places a runner sweeps, volunteer or staff member in jeopardy on the trail, at checkpoints that cannot be completely handled at the checkpoint without outside aid.

1. Emergency traffic takes precedence over ALL other traffic.
2. Indicate your emergency to NCS on your first call (i.e.: "CONTROL, LAST CHANCE - EMERGENCY TRAFFIC") or ("BREAK, BREAK") IF YOU NEED TO STOP AN EXISTING CONVERSATION.
3. In general, stations with emergencies will not be moved to other channels, however, you may be asked to move if it is necessary to contact the mounted sweep teams at an incident site.
4. The Event Officials make all decisions in the emergency. Your job is to communicate their requests, information, decisions, and instructions to and from Event Control ... only. Please do not get trapped into being the decision makers.
5. Should NCS instruct you to contact an emergency response agency on one of our channels (e.g. Cal STAR), use your tactical call (name of your site). Answer their questions directly, be brief, and let them lead the situation. They know what they want and when they want it.
6. If you are concerned about the conduct of an emergency situation, please keep written notes as best you can and include them in your return envelope.

COLLECTION AND RETURN OF PAPERWORK

The Event Officials have asked that the radio crews return all of the site paperwork to Event Control after your checkpoint closes. This includes all timer's forms, drop forms and runner Numbers, RFIDs, Cards or Chips.

A manila envelope has been provided for this purpose.

The checkpoint staff has been very good about complying with this request. When you first arrive, coordinate with the station captain and/or timers on how you will accomplish this, and how the in-time and out-time reporting will work.

Should you encounter a problem or a lack of cooperation, please do not argue. Inform NCS of the issue and you'll get instructions. There is an Event Official at the control station at all times, and that official will handle the problem.

When you leave, come by the Event Control building in the ARD Overlook Park and turn in your envelope.

RUNNER STATUS REQUESTS

At sites where crews and/or spectators are allowed, you will likely be asked (repeatedly!), "Can you tell me where #xxx is?" The short answer is, "No." We do not have sufficient radio bandwidth and NCS time to research and answer all of these requests.

The Event directs crews to the event web site for information on each runner, and crews are urged to station someone at an Internet computer somewhere in the world who they can telephone and get the answer. The web site is <https://www.wser.org/> and that's where you should direct them. The Leader Board at Foresthill and Finish areas are also good location.

NCS can locate by the WEB CAST runner's location in special circumstances.

You may get a request from NCS as to whether a runner (or possibly his/her crew) is at your site. This is usually motivated by a problem that NCS is trying to clear. We ask that you make a good faith effort to answer the question, but at large sites, it can be impossible. In such case, report what happened ("Not here" and "We weren't able to determine" are two very different answers and are important to NCS)

DROPPED RUNNER PROTOCOL

We tell you this so you will be able to relay it to crews and runners when they begin asking you about it

Runners who drop at stations where crews are permitted will generally leave with their crews, if they are present. If the runner desires event transportation, the protocol is:

1. Runners that drop above Foresthill will be transported to Foresthill if it hasn't closed. Those who drop below Foresthill will be transported to the finish.
2. The WSER makes no guarantee of immediate transportation and runners and crew will probably know that. Runners may have to wait at a site until the transportation arrives, keeping in mind that some sites have very difficult access. In some cases, the runner(s) may need to ride out with the station staff when the station closes.
3. We ask that Radio Crews do not transport runners. If the situation appears to require that you do that, please contact NCS first.

GENERAL VOICE PROCEDURES

Do not call other stations on your Repeater Channels without getting permission from NCS. This is a controlled net.

The Simplex Channels are for CKPT to CKPT direct contacts or for sweep team communication.

Use tactical call signs (i.e. station locations) for all transmissions, except when you clear. To clear the channel, say "<tactical callsign> CLEAR, <your ham radio callsign>."

SWEEP TEAM PROCEDURES

- **Check in with NCS at least every 1 hour**
 - **Use locations that are known radio HOT SPOTS**
- **Change channels based on location as you make progress**
 - **Use channel line-up table (below) to guide your channel selection**
- **One radio per sweep team must always be ON**
 - **Monitoring primary NCS channel**
 - **We will periodically call you if you have not checked in per above**
- **Each radio-sweep should have ≥ 2 battery packs**
- **Radio-sweep checks in with radio operator at each AS**
 - **Team count and status**

Sweep Teams need to generally stop in a radio HOT SPOT, with antennas vertical. Then make their contact to NCS. This will get your best communication to NCS.

SWEEP TEAM RADIO ASSIGNMENTS

Date: 6/18/18				NCS		Simplex		
Team	Split-Ahead	Split-Back	Sweep Route	CH Primary	CH Secondary	CH Primary	CH Secondary	Comment
1	(A) Alpha	(B) Bravo	Squaw to Red Star	6	4 or 9	23	22	no coverage until over top of Squaw
2			Red Star to Duncan	6	4 or 9	23	22	
			Duncan to Robinson	4 or 9	9 or 4	23	22	bad area, try simplex if primary not working
3			Robinson's to Last Chance	4	9	23	22	
			Last Chance to Devil's Thumb	6	9	23	22	
4			Devil's Thumb to Michigan Bluff	7	9	23	22	
	Michigan Bluff to Foresthill	15	4	23	22			
5			Foresthill to Cal 3	15	4	24	25	
			Cal 3 to Green Gate	9	4	24	25	
6			Green Gate to Placer High	9	17	24	25	
Cross Band Repeaters (CRB)								

INSTRUCTIONS GIVEN TO AID STATIONS

The following sections are a copy of the instructions given to the aid station teams. This is included so you can see the protocols from both perspectives (aid stations and radio).

1.1 Runner Tracking Forms

A combination of computer and radio communications will track the runner's progress. The "IN" or "OUT" runner tracking forms are a very important component of this process. Make sure there are volunteers positioned at the entrance and exit of your aid station, tracking runners as they enter and leave the aid station. If you don't have the resources for IN and OUT please record just the IN times. Please note on the runner tracking forms if you are recording "IN" or "OUT" times. Please number each runner tracking form and keep them in numerical order. Also, please use military style time in your entries, 1PM is 13:00, 2PM is 14:00 (hint: add 12:00, if after noon, but before mid-night).

With the exception of the first top ten runners and the last ten runners, once a runner tracking form is full or every thirty minutes (whichever comes first), please give the form with IN times to the RO so the information can be relayed to Net Control. The forms with OUT times are to be used by the Aid Station timers for reconciliation purposes. OUT times are not communicated to Net Control. The RO should be immediately notified (using a tracking form with an IN time) of the arrival of each of the top ten runners and each of the last ten runners. Please keep in mind that internet spectators from around the world are anxiously awaiting news of the progress of their runner at the WSER website. The ultralive.net website will receive over 1.5 million hits during the event.

After your aid station closes, your RO must return all tracking forms (IN and OUT, if recording both) to Net Control. A summarization sheet is provided to help Aid Station timers reconcile how many runners have entered your aid station, how many have left, and how many have dropped at your aid station. Net Control will ask the RO for this information to ensure all runners have been accounted for and that the Aid Station can safely close. If you do not have a RO, the Aid Station Captain must deliver all tracking forms to Net Control. This information is used by Network Control to track all runners.

Aid station identifying codes are to be used on the runner tracking forms. Listed below are the identifying codes for each aid station:

Lyon Ridge	LR
Red Star Ridge	RS
Duncan Canyon	DC
Robinson Flat	RF
Miller's Defeat	MD
Dusty Corners	DU
Last Chance	LC
Devils Thumb	DT
El Dorado Creek	ED
Michigan Bluff	MB (MBI&MBO)
Foresthill School	FH (FHI&FHO)
Dardanelles	DD
Peachstone	PS
Ford's Bar	FB
Rucky Chucky	RC
Green Gate	GG
Auburn Lake Trails	AL
Quarry Rd	QR (historically BB)
Pointed Rocks	PR (historically HC)
No Hands Bridge	NH
Robie Point	RP
Placer High	FL

1.2 Dropped Runner Protocol

Once a runner has been dropped from the WSER, the Aid Station Captain is the only person authorized to remove the wristband. All cut wristbands shall be given to the RO. The RO is responsible for returning all wristbands to Net Control. If the aid station does not have a RO, the Aid Station Captain is responsible for returning all wristbands to Net Control immediately after closing the aid station.

The Medical Aid Station Captain will be the only person authorized to pull a runner from the WSER for medical reasons. To ensure control and proper protocol, all runners dropping from the WSER for medical reasons must have their wristbands removed by the Aid Station Captain.

Runners dropping prior to Foresthill, should be transported to Foresthill. Runners dropping after Foresthill, should be transported to the Finish Line.

1.3 Lost Runner Protocol

If it is determined that a runner is lost, the aid stations prior to and immediately after your aid station should be contacted to see if the lost runner is accounted for at either location. If not, two Safety Patrol (sweep) runners (GPS equipped if possible) should go back out on the trail for one hour blowing their whistles. At one hour they will turn around and return to the aid station. In the event that the lost runner cannot be found, the RO will advise Net Control who will in turn advise Search and Rescue. The Aid Station Captain and RO are required to stay at the aid station until they are relieved by Search and Rescue or Net Control.

1.4 Aid Station Cutoffs

Checkpoint	Distance	Cutoff
Lyon Ridge	10.3	10:30am*
Red Star Ridge	15.8	10:30am
Duncan Canyon	24.4	12:30pm
Robinson Flat	30.3	2:10pm
Miller's Defeat	34.4	3:15pm
Dusty Corners	38	4:05pm
Last Chance	43.3	5:25pm
Devil's Thumb	47.8	7:10pm
El Dorado Creek	52.9	8:40pm
Michigan Bluff	55.7	9:55pm
Foresthill	62	11:45pm
Dardanelles (Cal-1)	65.7	2:40am*
Peachstone (Cal-2)	70.7	2:40am
Ford's Bar (Cal-3)	73	5:00am*
Rucky Chucky	78	5:00am
Green Gate	79.8	5:50am
Auburn Lake Trails	85.2	7:15am
Quarry Rd	90.7	8:40am
Pointed Rocks	94.3	9:40am
No Hands Bridge	96.8	11:00am*
Robie Point	98.9	11:00am
Placer High School	100.2	11:00am

* Default cutoff for aid stations without cutoffs

Those in red will have enforcement help from cut-off coordinator

1.5 Aid Station Closure

You can start to break down the aid station shortly before the absolute cutoff. However, save some food and water for the sweeps which will all be footed beginning in 2018 (no horse sweeps). When the sweeps have arrived at the aid station and all runners have been accounted for (as verified by Net Control), the aid station can be closed. Please do not leave your aid station until Net Control clears you to leave. We ask that the Aid Station Captain or a volunteer stay at the aid station until the sweeps are 30 minutes down course and to a point of no-return (cannot return up course).

*Aid stations without RO's may leave their aid stations 30 minutes after the sweeps have cleared.

Once the sweeps have left the aid station, please dump all coolers with electrolyte drink. If possible, try to wash out the coolers prior to returning them to the Auburn warehouse. All Aid Station food (not spoiled or soiled) should be brought back to Placer High School to be used at the Finish Line Aid Station. The Finish Line Aid Station serves many hungry runners throughout the night. Finally, as a reminder, all drop bags should be brought back to Placer High School ASAP after aid station closes.

A special thanks to our coordinators for their extra help throughout the year.

Glenn Maclean, WA7SPY	Repeater Trustee & Coordinator
Kim Scheidel, KE6RKX	Repeater Trustee & Coordinator
Dennis Bartoldo, N6PMI	Repeater Trustee & Coordinator
Rich Littlefield, K6KLB	Winlink Coordinator
Greg Kruckewitt, KG6SJT	Winlink Coordinator
Eric Struble, W7CSD	PCSAR Repeater Coordination
Richard Kuepper, WA6RWS	W6EK Repeater Trustee & Engineer
Ralph Lucas, W6RWL	WinLink Gateways, Advisor to WSER

Please review:

<https://www.wser.org/volunteering/communication/volunteer-requirements/> before the event. We really do appreciate your volunteer efforts. Enjoy the event and the Sierra scenery.

This is a TEAM effort. You're all part of this team:

“WESTERN STATES COMMUNICATIONS”

73,

Joe, K6SAT

radio@wser.org

HAM Radio Coordinator

Appendix:

1)

Freq. below only to be used for Emergency's only. NCS will direct you to use this Freq. or any other as direct by agency.

"CALCORD Freq."

156.075 Simplex (PL 156.7 Encode & Decode) **NARROW**

To use this "commercial" frequency you need either a commercial radio or an amateur radio that has been modified for this purpose. Even if you can't transmit it might be a good idea to be able to receive it.

2)

Digital Checkpoints:

Use digital mode as primary mode to transmit Runner data to NCS, as available.

The following table gives you an idea of where radios are used, whether voice is main method of communication or if WinLink2000 is also used. Open and Close times are also listed to give an idea of how long an Aid Station is operational.

Checkpoint	Code	Open	Close	Total	Radio	WL2K	HotSpot
Lyon Ridge	LR	05:00	09:30	4:30	Yes	Yes	Yes
Red Star	RS	06:30	10:30	4:00	Yes	Yes	Yes
Duncan Canyon	DC	07:00	12:30	5:30	Yes	Yes	
Robinson Flat	RF	08:25	14:45	6:20	Yes	Yes	Yes
Miller's Defeat	MD	09:00	15:40	6:40	Yes	Yes	
Dusty Corners	DU	09:30	16:45	7:15	Yes	Yes	
Last Chance	LC	10:30	18:00	7:30	Yes	Yes	
Devil's Thumb	DT	11:00	19:30	8:30	Yes	Yes**	
El Dorado Creek	ED	12:00	21:15	9:15	Yes		
Michigan Bluff	MB	12:30	22:30	10:00	Yes		Covered by WebCast Team
Foresthill	FH	13:00	00:30	11:30	Yes		
Dardanelles (Cal I)	DD	13:30	01:30	12:00	Yes*		
Peachstone (Cal II)	PS	14:00	03:00	13:00	Yes	Yes**	Yes
Ford's Bar (Cal III)	FB	14:30	04:00	13:30	Yes*		
Rucky Chucky	RC	15:00	06:00	14:00	Yes	Yes**	
Green Gate	GG	15:45	06:30	13:45	Yes		
Auburn Lake Trails	AL	17:00	08:00	15:00	Yes		Yes
Quarry Road	QR	18:30	09:00	14:30	Yes		
Pointed Rocks	PR	18:30	10:00	15:30	Yes		Yes
No Hands Bridge	NH	19:00	10:45	15:45			Covered by WebCast Team
Robie Point	RP	19:15	11:15	16:00			Covered by WebCast Team
Finish Line	FL	20:00	12:00	16:00			Covered by WebCast Team

**only if we have enough radio operators with WL2K capability.*