October 2018

Newsletter of the County of Orange Radio Amateur Civil Emergency Service

Inside this issue:

Captain's Corner	1
Delia Kraft, KR6AFT	2
OCRACES Meeting	3
City/County Meeting	3
ShakeOut Drill	3
October 6th Drill	4
Cooperative T-Hunt	5
RACES/MOU News	6
Events Calendar	7
OCRACES Members	8

Next OCRACES Meeting:

Monday, October 1 2018, at 1930 Hours

840 N. Eckhoff Street, Suite 104, Orange

Guest Speaker: Wayne Yoshida, KH6WZ: "What's Your Ham Radio Flavor?"

Orange County Sheriff's Department
Communications & Technology Division

Captain's Corner

by RACES Captain Ken Bourne, W6HK, Chief Radio Officer

DMR Roaming

Many RACES members now have DMR (Digital Mobile Radio) capabilities, and some have Motorola or Hytera radios with the *roaming* feature. The Motorola and Hytera radios are just single-band (UHF to cover the California DMR repeaters). RACES members who wish to have a single radio to cover both 2 meters and 70 centimeters on both DMR and analog FM now have a choice such as the AnyTone AT-D868UV handheld radio. Unfortunately (for some), the 868 does not have roaming, but a new version (AT-D878UV) will have that feature, plus the capability of sending APRS packets on analog FM (the 868 supposedly can do that on Brandmeister DMR with the latest firmware, but not on FM). But what is roaming and why is it important?

If you don't do much driving, roaming might not be important to you. However, if you drive out of a good repeater coverage area into areas served by other repeaters, roaming will automatically switch your radio to a repeater that provides adequate signal strength, while you stay on a particular DMR talkgroup, provided that the other repeaters are active or transmit a roaming beacon signal on the same talkgroup and same timeslot that your radio is on.

Roaming is also a safety feature, helping to avoid distracted driving. It enables you to focus your attention on driving and not on changing repeater channels.

Roaming is somewhat similar to scanning, but is different. Roaming causes your radio to automatically select the best repeater if the Receive Signal Strength Indicator (RSSI) on your currently selected channel falls below a defined threshold level while you move through an area covered by repeaters on the same talkgroup on the same timeslot.

In its default (or "passive") mode, the radio continuously measures a repeater's RSSI when active, or through short polling bursts (beacons) from the repeater when it's not active. When the signal strength drops to a defined threshold level, the radio begins to step through a preprogrammed roam list of other repeaters until is finds a repeater that meets or exceeds the signal threshold. You would then transmit and receive on the channel automatically selected by the roaming feature.

In addition to passive mode, "active" roaming can be enabled. In this mode, the radio sequentially pings ("kerchunks" with a 30-60 millisecond burst) each repeater in the roam list when you push your PTT button until it finds a repeater that meets the required signal-level threshold. The radio then remains on the accessed repeater and gives you a go-ahead tone (if programmed).

Repeaters can be configured to beacon at predefined intervals when there is no activity, to be detected by a receiver when it is roaming. A roaming receiver can lock onto a repeater that does not beacon, but only when that repeater is active on the selected talk group on the same timeslot. Only Motorola repeaters are permitted on a DMR-MARC system. A Motorola repeater

Continued on page 2

Captain's Corner *Continued from page 1*

that is set up to beacon typically will transmit a beacon signal every 60 seconds for 4,320 milliseconds, to be compatible with DMR-MARC and Brandmeister systems. A radio with roaming will not start roaming until a preprogrammed signal threshold is reached, such as –103 dBm.

Roaming does not work everywhere there is a DMR repeater. All DMR repeaters are not on the same set of repeater pairs. Talk groups are not standardized for a particular timeslot on different DMR networks, so programming several different frequency pairs into a radio doesn't work if the desired talkgroups are not always on a common timeslot.

DMR roaming is somewhat similar to cellphone roaming, changing automatically to a new repeater frequency while maintaining the same talkgroup, as you move to a different repeater coverage area. Since I don't yet have a radio with the roaming feature, I have compiled the following information from instructions that I found on the Web. To configure your radio with the roaming feature, you would create a channel with the correct color code (the DMR equivalent of a subaudible tone, otherwise known as CTCSS or Motorola's "PL"), timeslot, and talkgroup for each repeater you expect to be in your area of travel. Check "IP Connect" (or the equivalent) in your programming software. Create a roam list and add the created channel. Your radio will then switch automatically to the next repeater with adequate signal in your roam list.

You would create one roam list for each network talkgroup. Each list may contain 15 or more repeater sites (frequency pairs).

When a channel is configured for roaming, it cannot also be configured for scanning. However, group lists may still be used. Roaming and scanning are mutually exclusive. Most radios do not allow you to assign both a roam list and a scan list to a particular channel. While roaming, the radio continuously steps through each repeater in the roam list to measure its signal strength. This would constantly interrupt scanning. However, the receive group list feature can be used in place of scanning under certain conditions. (Instead of scanning DMR talkgroups with my AnyTone 868, I prefer to use digital monitor, which allows monitoring of all talkgroups on a selected repeater. With the 868, digital monitor can be enabled for monitoring all talkgroups in the timeslot of the currently selected channel, or all talkgroups in both timeslots of the repeater.)

The receive group list allows the radio to monitor more than one talkgroup while a particular channel is selected, without having to use scan (which is incompatible with roaming). For example, to hear conversations on the SoCal talkgroup or the California talkgroup without scanning or switching channels, you would create a receive group list consisting of both talkgroups, and assign that list to a particular channel. (I prefer to monitor all talkgroups on both timeslots, rather than just a couple of talkgroups, which gives me an indication of whether a timeslot is occupied. My AnyTone 868 allows me to do that. I have also programmed it to scan all OCRACES 2-meter and 70-centimeter FM repeaters at the same time, as well as VHF and UHF public-safety frequencies. However, as I stated previously, the 868 does not allow roaming, but the new 878 will.) Motorola and some other radios are somewhat limited, because you can only listen to talkgroups that share the same timeslot that is programmed for a particular channel. Hytera radios have a "pseudo trunk" feature that allows the radio to listen for messages on either timeslot, allowing a receive group list to contain talkgroups from both timeslots. Because receive group lists are compatible with roaming, if you assign a receive group list to each repeater in a roam list, you will hear transmissions from those group-list talkgroups when you roam to that particular repeater.

Delia Kraft, KR6AFT, Moves to Support Services

Administrative Manager Delia Kraft, KR6AFT, announced at the September 10th OCRACES meeting that she is transferring from the OCSD Communications & Technology Division to the Support Services Division. She will be working on a body-camera project at SSD. Delia has given exemplary support to OCRACES since promoting to the Communications & Technology Division as Emergency Communications Manager and then promoting to Program Support Manager and Administrative Manager. She has made our meetings fun and interesting, and contributed greatly to our Field Day events, participated as an innovative fox in our cooperative T-hunts, and inspired our members to improve their capabilities. She set an example for all members, coming aboard with a Technician Class license and upgrading all the way to Amateur Extra. Her enthusiasm is contagious, and her leadership endeared her to our members. We will miss Delia, and we wish her the greatest success in her important new responsibilities at OCSD Support Services Division.

Wayne Yoshida at Oct. 1st OCRACES Meeting

Wayne Yoshida, KH6WZ, will give a fascinating presentation on "What's Your Ham Radio Flavor?" at the next County of Orange RACES meeting on Monday, October 1, 2018, at 7:30 PM, at OCSD Communications & Technology Division, 840 N. Eckhoff Street, Suite 104, in Orange. Wayne will go into the question about what's out there besides RACES, FM, repeaters, HTs, and mobile FM rigs. Some of the topics he will cover include:

- Building useful accessories to enhance RACES/EmComm communications
- Repairing or restoring old radios
- Satellite operation
- HF and DXing
- DXpeditions
- Television
- VHF and beyond

Wayne will cover other topics as well, with an emphasis on at least getting exposed to other aspects of ham radio, but not an emphasis on buying more equipment or spending a lot of money. Wayne has a list of local resources for getting help on investigating these other areas of ham radio. He will suggest some easy and fun projects that won't take up a lot of your time, but will reward you with some useful accessories, such as building a 2-m/70-cm j-pole antenna out of cheap TV twinlead. He suggests this could become a nice RACES group project.

City/County RACES & MOU Meeting: Oct. 17th

The next City/County RACES & MOU meeting will be on Monday, October 17, 2018, at 7:30 PM, at OCSD Communications & Technology Division, 840 N. Eckhoff Street, Suite 104, in Orange. At this meeting we will review the October 6th City/County RACES & MOU ACS exercise (see page 4).

Are You Ready to ShakeOut?

On October 18, 2018, at 10:18 AM, millions of people will practice "Drop, Cover and Hold On" as they participate in the largest earthquake drill and preparedness event in world history. The goal of the annual drill is to prevent disasters from becoming catastrophes by increasing the probability for survival and community resiliency. The drill is held annually on the third Thursday of October. You can join millions of participants at 10:18 AM on October 18th who want to practice earthquake-safe action when seconds count.

What you do now, before a big earthquake, will determine how well you survive and recover. The ShakeOut drill serves as a reminder to conduct a "self-assessment" of individual readiness at home. Have open discussions with family and loved ones about preparing for large-scale emergencies that can adversely impact our daily lives.

Take this opportunity to prepare and plan for any event that may cause you to go for an extended duration of time without electricity, water service, access to a supermarket, or other local services. It is a time to prepare yourself, your family, and your loved ones for any emergency. Just follow these four steps:

1. **Get a Kit:** Keep enough emergency supplies on hand for you and those in your care, including water, non-perishable food, first aid, prescriptions, flashlights, and a battery-powered radio. For a complete checklist of supplies, visit www.ReadyOC.org.
2. **Make a Plan:** Discuss, agree on, and document an emergency plan with those in your care. For sample plans, see www.ReadyOC.org. Work with your neighbors, colleagues, and others to build a community network of resilience.
3. **Receive Emergency Alerts:** During an emergency, information will be made available from local officials. You can sign up for emergency alerts and notifications at www.AlertOC.com.
4. **Get Involved:** Programs such as the Community Emergency Response Team (CERT) are designed to help you protect yourself, your family, your neighbors, and your neighborhood in an emergency situation. Check your city's website for more information.

Now is the time to train, practice, and prepare for the next major earthquake. Visit www.shakeout.org to learn more.

City/County RACES & MOU Drill: October 6th

The next City/County RACES & MOU ACS Exercise will be on Saturday, October 6, 2018. Typically, our countywide exercises have stressed the emergency amateur radio communications network with a high level of radio traffic. However, due to concerns that emergency communications might be degraded or fail due to poor repeater coverage in some areas of the county, or due to possible repeater failure, this exercise will be a field-deployment exercise and will focus on alternative means of communications in case of such repeater problems. These alternative means of communications will consist of simplex relays on 2 meters and 70 centimeters between cities and to the Orange County EOC, as well as HF NVIS (Near Vertical Incidence Skywave) communications on the 60-meter amateur radio band.

County, city, and MOU members will test their communications capabilities with the county on the OCRACES 2-meter repeater (146.895 MHz) and on two of the OCRACES 70-centimeter repeaters (448.320 MHz and 449.180 MHz) from areas that potentially provide poor or no coverage. A roll call of all city and MOU units as well as all OCRACES members will be conducted from the Orange County EOC on the 146.895 MHz repeater at the beginning of the drill, followed by a roll call on the 448.320 MHz repeater. Check-ins will also be taken on the 449.180 MHz repeater and on 60 meters channel 2 (5346.5 kHz upper sideband, dial frequency). The OC EOC will also listen for check-ins on 146.595 MHz and 446.000 MHz simplex (direct or via relay) from stations who cannot access the repeaters.

OCRACES will focus on testing coverage from known and suspected areas of poor radio coverage, as well as areas where our members are likely to be deployed during an emergency, such as:

- Irvine Park (east of Orange), in the area often used for OCFA staging
- Eastern half of Carbon Canyon Road, to San Bernardino County border
- Eastern half of Silverado Canyon Road
- Modjeska Canyon Road near Tucker Wildlife Sanctuary
- Various locations along Live Oak Canyon Road and Trabuco Canyon Road
- Oso Parkway near Thomas R. Riley Wilderness Park
- Ortega Highway at Ronald W. Caspers Wilderness Park and points northeast

City RACES members will focus on other canyon and beach areas below cliffs that are suspected to have poor radio coverage.

Communications failures and successes should be logged on an ICS 309 form, including times, frequencies, call signs (sent/received), and your locations.

After completing tests with the county, cities and MOUs may wish to conduct further tests within their own jurisdictions on their own repeaters, looking for areas of poor or no coverage. The participants will map the poor- or no-coverage areas for an after-action report and will attempt communications with the county via simplex relays and, where available, via 60-meter stations.

If, in some bad-coverage areas, no over-the-air communications are possible via the 2-meter or 70-centimeter OCRACES repeaters, or via 60 meters, participants may attempt to communicate with the Orange County EOC via portable Winlink through one of three county RMS sites or via Telnet (noting their routing method in their Winlink message), or via DMR on the KA6P Santiago Peak repeater, or on Zello.

If time permits, after testing the repeaters, simplex relay, 60 meters, and portable Winlink, we will also test DMR with this exercise, with contacts to be made on the "Local-1" talk group (TG 3181, TS 1) of the KA6P DMR repeater on Santiago Peak, on 449.0375 MHz, CC1.

Although not a required part of this exercise, participants are encouraged to beacon their locations via APRS, either over the air or through a smartphone app. Net control operators may then monitor those locations over the air (using an appropriately set-up transceiver on 144.39 MHz with a TNC and computer, or via https://aprs.fi on the Internet. (Monitoring APRS over the air might be out of range of some mobile/portable stations, and will not pick up stations beaconing via a smartphone app.)

If all other communications modes fail from a test location, participants may call on Zello, which is a smartphone push-to-talk app. County and city RACES and MOU members are encouraged to install Zello and the OC EmComm channel on their smartphones in time for this exercise.

Formal messages are not planned for this exercise. However, if any such messages are sent (whether or not an ICS-213 message form is used), the text must begin and end with the statement, "This is a drill."

WA6TWF and KC6QCD Hide in Fullerton

David Corsiglia, WA6TWF, and Dennis McArdle, KC6CQD, were the fox on the monthly cooperative T-Hunt on Monday, September 17, 2018. They hid the fox box in bushes in the northwest corner of Beechwood Park in Fullerton, near some high ballpark chain-link fences that shielded and reflected the fox's signal. This was an unusual hunt, with the fox transmitting tones on the input of the 448.320 MHz repeater, and hunters comparing bearings on the 146.895 MHz repeater. Because most hunters do not have UHF direction-finding equipment, only two hunting teams participated.

Near the fox's den are (left to right) Pete Bergstrom, K6PB, Ken Bourne, W6HK, Dennis McArdle, KC6QCD, David Corsiglia, WA6TWF, and Jack Barth, AB6VC. David and Dennis were the fox, and Peter Gonzalez, KC6TWS, took this photo.

Peter Gonzalez, KC6TWS, and Pete Bergstrom, K6PB, were the first to find David's car at the eastern end of Beechwood Park. While they were on foot searching throughout the park, Ken Bourne, W6HK, and Jack Barth, AB6VC, who started at the nearby Fullerton Sports Complex, had driven north on Harbor Boulevard, following a reflected signal. They saw Peter's APRS beacon at the park and headed back in that direction. They soon found David's car and proceeded to hunt on foot. The chain-link fence presented a challenge. Loops were pointing into that fence from all directions, However, Ken noticed as he walked to the west along the fence that the signal was getting stronger, even though his loop was pointing south. Just as he walked beyond the fence, the loop bearing suddenly shifted to the west, directly at the fox box hidden in some bushes. The remaining hunters then turned around and all gathered at the fox box. It was a great location, and congratulations to David and Dennis for an excellent hide.

Due to holiday and meeting schedules, there will be no cooperative T-hunt in October, unless we get at least three requests to hold a hunt on October 8th, which is Columbus Day and a county holiday. (The third Monday in October, the 15th, will be a City/County RACES & MOU meeting.) Otherwise, the next hunt will be on Monday, November 19, 2018, immediately following the OCRACES 2-meter net (approximately 7:20 PM). We are looking for a volunteer to be the fox, and a fox box will be provided. No fees will be required to drive directly to the fox. He will transmit on the input (146.295 MHz) of the 146.895 MHz repeater. Hunters will compare bearings via the 448.320 MHz repeater and are encouraged to beacon their positions via APRS throughout the hunt.

The cooperative T-hunts are usually held on the third Monday of each month (except in October). The hunts provide excellent practice in working together to find sources of interference quickly. The hunts are not official RACES events, so DSW (Disaster Service Worker) coverage does not apply. Please drive carefully!

Fox-hunt loops and beams are available from Arrow Antenna and HRO, including the Arrow Model FHL-VHF fox-hunt loop (covers 1 MHz to 600 MHz) and the Arrow Model 146-3 three-element portable hand-held yagi. The Arrow OFHA 4-MHz offset attenuator can be useful when close to the fox, to prevent receiver overload. For on-foot hunting, the BC-146.565 three-element, hand-held, foldup, yagi antenna is available from Bob Miller Enterprises (http://www.rdfantennas.com), along with the VK3YNG MK4 sniffer. An all-mode transceiver is quite useful, allowing hunters to switch to the SSB or CW mode for detecting extremely weak signals, or to switch in a built-in attenuator, reduce RF gain, or tune slightly off frequency when dealing with extremely strong signals. Some hunters use the DF2020T radio direction finder kit, which is a Doppler system available from Global TSCM Group, Inc. (http://www.kn2c.us). A very similar system is the MFJ-5005 Doppler direction finder. Useful apps are available for iPhones and Android phones. For some excellent information on T-hunting, see http://www.homingin.com.

RACES/MOU News from Around the County

"RACES/MOU News" provides an opportunity to share information from all City & County RACES/ACS units and MOU organizations and supportive amateur radio clubs in Orange County.

Please send your news to *NetControl* Editor Ken Bourne, W6HK, at:

w6hk@ocraces.org

Orange RACES (COAR)

Saturday COAR team at the International Street Fair.

COAR team worked multiple shifts to support the Orange Police Department during the International Street Fair, Labor Day weekend. Net Control operated from the Mobile Command Post. Activities included: 1) Attending OPD briefings and coordinating activities with OPD supervision; 2) Roamer Teams acted as extra eyes and ears for OPD, increasing department visibility; 3) Net Control monitored OPD Dispatch and relayed pertinent information to Roamer Teams. OPD staff are being trained by COAR members to set up the EOC in the event of activation. COAR will be participating in the October 6th City/County RACES & MOU ACS exercise.

Hospital Disaster Support Communications System (HDSCS)

HDSCS leadership held a mini-workshop on Saturday, September 8, 2018, to help new members become more familiar with procedures and some of the special aspects of supporting medical facilities. The half-day workshop covered SEMS, HICS, the hospital environment, HDSCS interface with other emergency communications groups, developing one's disaster box, and what to do once on site at a hospital to get set up quickly and get back on the net to handle any messages.

HDSCS is planning a cross-band repeat workshop for its members, more of whom now have that capability. HDSCS Coordinator April Moell, WA6OPS, notes that not all medical facilities have amateur radio antennas, and some incidents require that the command center be in a different area where there is no hookup to the antenna.

Two HDSCS members were on-site at Foothill Regional Medical Center in Tustin early Friday morning, September 21, 2018, as the hospital performed a cutover on its electrical system. A complete power shutdown was not anticipated, but they were there in case a failure did occur and caused communications failures. This is particularly important at this hospital because it has 20 pediatric patients that are dependent on ventilators. HDSCS on-site operators were in constant radio contact with an outside base station that could expedite calls for additional assistance. This standby operation began at 3:30 AM and successfully concluded at 5:30 AM.

Amateur Radio License Exams

Oct. 13, 2018; 9:00 AM (no walk-ins; call ahead)
Sponsor: Hospital Disaster Support Communications System (HDSCS)
Contact: Ken Simpson, W6KOS
714-651-6535; w6kos@arrl.net
VEC: ARRL/VEC
Care Ambulance Headquarters, 1571 Braden Ct., Orange

Oct. 18, 2018; 5:30 PM (walk-ins allowed)
Sponsor: West Coast ARC
Contact: Ken Simpson, W6KOS
714-651-6535; w6kos@arrl.net
VEC: ARRL/VEC
Coastal Community Fellowship Church, 10460 Slater Ave., Fountain Valley

Oct. 18, 2018; 6:00 PM (walk-ins allowed)
Sponsor: Western ARA
Contact: George Jacob, N6VNI
562-544-7373; jac2247@gmail.com
VEC: ARRL/VEC
La Habra Community Center, 101 W. La Habra Blvd., La Habra

Oct. 27, 2018; 10:00 AM (no walk-ins; call ahead)
Sponsor: PAPA System Repeater Group
Contact: Jack Suchocki, W6VFR
954-816-8721; jack@w6vfr.com
VEC: Greater LA VEC
Mimi's Café, 1240 N. Euclid St., Anaheim

October 2018

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1 Weekly 2 m ACS Net & OCRACES Meeting	2	3	4	5	6 City/County RACES & MOU ACS Exercise
7	8 Columbus Day & Weekly ACS Net	9	10	11	12	13 Weekly 60 m ACS Net
14	15 Weekly 2 m ACS Net & City/County/ MOU Meeting	16	17	18 ShakeOut Drill	19 Orange County Amateur Radio Club Meeting	20 Weekly 60 m ACS Net
21	22 ACS Nets on Five Bands & Cal OES Nets	23	24	25	26	27 Weekly 60 m ACS Net
28	29 Weekly 2 m ACS Net	30	31			

Upcoming Events:

- **October 1:** OCRACES Meeting, 840 N. Eckhoff Street, Suite 104, Orange, 1930-2130 hours
- **October 6:** City/County RACES & MOU ACS Exercise, 0900-1100 hours
- **October 8:** Columbus Day (county holiday)
- **October 15:** City/County RACES & MOU Meeting, 840 N. Eckhoff Street, Suite 104, Orange, 1930-2130 hours
- **October 18:** Shakeout Drill, 1018 hours
- **October 19:** Orange County Amateur Radio Club Meeting (annual auction), American Red Cross (George M. Chitty Building), 600 Parkcenter Drive, Santa Ana, 1900 hours

www.ocraces.org

Mission Statement

County of Orange RACES has made a commitment to provide all Public Safety departments in Orange County with the most efficient response possible to supplement emergency/disaster and routine Public Safety communications events and activities. We will provide the highest level of service using Amateur and Public Safety radio resources coupled with technology, teamwork, safety, and excellence. We will do so in an efficient, professional, and courteous manner, accepting accountability for all actions. We dedicate ourselves to working in partnership with the Public Safety community to professionally excel in the ability to provide emergency communications resources and services.

County of Orange RACES Frequencies

60 m: 5346.5 kHz USB (dial) (Channel 2) (OC ACS Net—Saturdays, 1000 hours)
40 m: 7250 kHz LSB
10 m: 29.640 MHz output, 29.540 MHz input, 107.2 Hz PL
6 m: 52.620 MHz output, 52.120 MHz input, 103.5 Hz PL
2 m: 146.895 MHz output, 146.295 MHz input, 136.5 Hz PL*
2 m: 146.595 MHz simplex
1.25 m: 223.760 MHz output, 222.160 MHz input, 110.9 Hz PL
70 cm: 446.000 MHz simplex
70 cm: 448.320 MHz output, 443.320 MHz input, 141.3 Hz PL (private)
70 cm: 449.100 MHz output, 444.100 MHz input, 110.9 Hz PL (private)
70 cm: 449.180 MHz output, 444.180 MHz input, 107.2 Hz PL (private)
70 cm: 449.680 MHz output, 444.680 MHz input, 131.8 Hz PL (private)
23 cm: 1287.650 MHz, 1287.675 MHz, 1287.700 MHz, 1287.725 MHz, 1287.750 MHz, and 1287.775 MHz outputs, –12 MHz inputs, 88.5 Hz PL

*Primary Net—Mondays, 1900 hours

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Lee Kaser, KK6VIV
714-704-8080

Chief Radio Officer (Captain)
Ken Bourne, W6HK
714-997-0073

Radio Officer (Lieutenant)
Scott Byington, KC6MMF

Assistant Radio Officers (Sergeants)
Jack Barth, AB6VC
Ernest Fierheller, KG6LXT
Bob McFadden, KK6CUS
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It's Where It's @!

Questions or Comments?
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"W6ACS ... Serving Orange County"

Meet Your County of Orange RACES Members!

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Scott Byington
KC6MMF

Jack Barth
AB6VC

Ernest Fierheller
KG6LXT

Bob McFadden
KK6CUS

Tom Tracey
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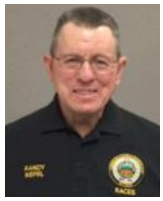

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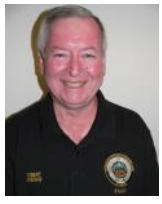

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