March 2019

County of Orange RACES
NetControl

Newsletter of the County of Orange Radio Amateur Civil Emergency Service

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Next OCRACES Meeting

**Monday,
March 4, 2019,
at 1930 Hours**

840 N. Eckhoff Street, Suite 104, Orange

Presentation on Loop Antennas by Alan Hill, W6ARH

Orange County Sheriff's Department Communications & Technology Division

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Captain's Corner
by RACES Captain Ken Bourne, W6HK, Chief Radio Officer

Power-Grid Vulnerability

We tend to take for granted the electric power we get from Southern California Edison (SCE). A temporary power outage is startling and disturbing, especially if it's in the middle of using our computers, watching TV, chasing rare DX, or keeping the lights on at night.

A few days ago SCE notified me that they will be working in my neighborhood soon to make improvements to the electrical grid. SCE said their approved contractor needs to excavate in the SCE easement that runs on my property, and that they may need to remove trees. Say, what? My G5RV wire antenna runs from my back-yard tree to a front-yard tree. Removing either tree would put me off the air for running our Saturday 60-meter ACS nets.

But wait! There's more! Roughly a quarter of SCE's service territory is categorized as a high fire risk area. Their wildfire mitigation strategy includes Public Safety Power Shutoffs (PSPS), in which they preemptively shut off power in high fire risk areas to reduce fire risk during extreme and potentially dangerous fire weather conditions. But we need power for our non-battery-operated ham equipment, which we might need to use for RACES traffic during high-wind events. Public-safety facilities need to maintain power during these emergencies, and PSPS should be a concern even to our Orange County EOC (which fortunately has a heavy-duty backup generator system). A PSPS duration could last many hours, such as in December 2017 when a PSPS caused 5,000 residents in Idyllwild to be without power for 34 hours.

Of growing concern to maintaining a reliable power grid are cyberattacks. An article in the February 19, 2019, edition of *The Orange County Register* revealed some disturbing information. "Cyber invaders are an around-the-clock danger, trying to penetrate grid security every minute of every day," said the article. "Should the grid be hijacked, the entire state could be held hostage, experts say."

If a cyberattack against Edison is successful, we would be without lights, telephone service, charging capacity, heating, cooling, computers, gas pumps, ATMs, etc. SCE serves 40 million people's homes.

In the case of cyberattacks, the Internet is a weapon of mass destruction. Power utilities are a potential victim of ransomware and hacking. The *Register* quoted Sue Gordon, Principal Deputy of National Intelligence, the federal government's leading cybersecurity agency, as saying, "Our adversaries are advancing at a rapid clip. Within a few years Russia and China will have the ability to conduct on-demand localized disruption of service, including of control systems in multiple sectors, simultaneously."

The *Register* points out that "the state operates two entities tasked with analyzing and addressing potential hacking threats, particularly to critical infrastructure such as power stations and the dams where hydroelectric power is generated, and coordinating their efforts with utility companies."

The California Independent System Operator (ISO), a non-profit that oversees the operation of California's bulk electric

Captain's Corner *Continued from page 1*

power system, transmission lines, and electricity market generated and transmitted by its member utilities, is constantly being attacked and has significantly increased investment in cybersecurity in recent years and regularly conducts internal testing. California's largest investor-owned utilities (SCE, Pacific Gas and Electric, and San Diego Gas & Electric) have specific departments to defend against cyberattacks.

Some hackers access a utility's system and simply explore it without causing immediate problems, preparing for a later time when they would launch a devastating attack. Malware can reside on a system for months or longer, waiting for a "ripe" time to virtually destroy the system. Hackers also routinely and automatically attempt to access utility, business, and government systems. David Goeckeler, executive vice president of San Jose-based computer networking giant Cisco, said saboteurs attempt to hack Cisco's systems 20 billion times a day!

The *Register* mentioned that California utilities participate with those of other states in federal exercises such as GridEx, a war game that simulates grid attacks and coordinates potential responses with local and state emergency agencies, law enforcement, the Department of Defense, and telecommunications and banking firms.

In any given day, thousands of cybersecurity violations occur at a power plant, including opening scam e-mails, using unsecured USB drives, and sharing passwords with coworkers.

In July 2017, Department of Homeland Security officials said that Russian hackers had been breaching utility control rooms since 2016 and that the attacks were ongoing, raising new concerns that hacking efforts were becoming more sophisticated.

Cyberattacks can reoccur over long periods of time, contrary to a natural disaster. After only a couple of weeks after an attack, reserve fuel for generators would be exhausted, leading to potable water shortages and an inability to treat sewage. Public order would deteriorate while residents sought water and electricity. Commerce would be devastated. RACES most likely would be activated!

AlertOC Notifies Members of Activation

On Friday, February 1, 2019, OCSD Emergency Communications Manager Lee Kaser, KK6VIV, and OCRACES Chief Radio Officer Ken Bourne, W6HK, discussed the Flash Flood Warning that was predicted for the next day, Saturday, February 2nd, and that, if it occurred, OCRACES should activate. Sure enough, the National Weather Service declared a Flash Flood Warning on Saturday. When that happened, Capt. Bourne contacted Assistant Radio Officer Tom Tracey, KC6FIC, and requested him to notify all members via AlertOC of an activation. (The AlertOC system was newly configured by Joe Selikov, KB6EID, for sending notifications of drills, activations, and deactivations in order via various deliveries, such as text, e-mail, mobile phone, work phone, and home phone. As soon as a member confirms receipt, subsequent deliveries in the order are stopped. The system also automatically sends weekly net reminders via text and e-mail, which do not require confirmation. Sgt. Tracey wrote many notification templates for AlertOC, which can be used during various situations. Most OCRACES officers have been trained by Joe on how to initiate notifications. AlertOC has now replaced the OCRACES paging system, and all members are requested to turn in their pagers to Lee Kaser.)

Upon receiving his AlertOC notification of the activation, Radio Officer Scott Byington, KC6MMF, called Capt. Bourne on the OCRACES 2-meter repeater and asked what was required. Bourne said he was on his way to the Orange County EOC and needed one more member at the EOC RACES Room. Lt. Byington soon headed to the EOC.

Activation announcements stated that flooding or emergency reports would be taken from OCRACES members in the field and relayed to the EOC Command Center from the RACES Room. However, OCSD Emergency Management Division did not activate the EOC, but Bourne and Byington could have run any emergency messages to Control One if necessary. After a couple of hours, it appeared that weather conditions were not so severe that the activation had to continue, and therefore OCRACES was deactivated.

Although the OCRACES activation was short and the EOC had not been activated, this event was excellent for testing the new AlertOC system, and gave us practice for using it during an emergency. Now that we got the practice, we considered it a good idea not to activate for future Flash Flood Warnings unless the EOC was activated to a high level and requested RACES to assist.

On February 14th, we thought that might happen. NWS issued another Flash Flood Warning and the EOC activated to Level 3 (low level). Lee Kaser advised that no OCRACES response was needed until EMD elevated the level (which they didn't). Capt. Bourne asked all members (via e-mail) to advise of their availability in case of activation. AlertOC notifications were not needed, but we were practiced and ready to use the system if conditions became critical. Meanwhile, AlertOC is now used on a weekly basis to automatically send net reminders to all members.

Next OCRACES Meeting: Monday, March 4th

The next County of Orange RACES meeting will be on Monday, March 4, 2019, at 7:30 PM, at OCSD Communications & Technology Division, 840 N. Eckhoff Street, Suite 104, in Orange. At this meeting, Fountain Valley RACES Chief Radio Officer Alan Hill, W6ARH, will give a very informative presentation on loop antennas.

Welcome to Don Mikami, N6ELD

We welcome our newest OCRACES member, Don Mikami, N6ELD. Don is a Reserve Lieutenant and a fixed-wing pilot with the Orange County Sheriff's Department Aero Squadron Reserve Unit (ASRU). He started in amateur radio as a Novice in his hometown of Fresno, California, with the call sign of WN6UPK. He later obtained his Technician and General in 1978 in Long Beach and now holds an Amateur Extra Class license. He attended UC Berkeley (Genetics), UCLA (Dentistry), and USC (Education and Prosthodontics). He has recently retired from private practice and is now involved with the OCSD in ASRU and OCRACES. Don resides in Costa Mesa in an HOA and is covertly attempting to erect various stealth antennas.

Don, N6ELD

Baker to Vegas Safety Patrol Recruits Hams

In the February 2019 issue of *NetControl*, we mentioned that Blair Stephens, KD6IFG, is recruiting hams for his "Safety Patrol" during the Baker to Las Vegas Challenge Cup Relay, which will be on March 23-24, 2019. Blair (a San Diego Police Air Support Unit Pilot) is the Coordinator for the Baker to Vegas Safety Patrol team. Sean Wolfe, W6PIX, and Chad Buchanan, N6NWZ (Cal OES Mutual Aid Region VI Communications Reserve Unit Officer), have been promoted to "Safety 2" under Blair, who is "Safety 1."

This year the course has been lengthened several miles and there is a severe shortage of patrol personnel. Blair has been reaching out to the EmComm and ham communities for help to fill the vacancies. (No relevant experience is necessary.) Chad reminds that this is not a deployment and is not connected with Cal OES, any level of government, or any ACS/RACES group or function.

The race starts in the morning on March 23rd on Route 127, north of Baker. Hundreds of runners from all over the nation (and world) show up for this event. They are all law-enforcement officers. They run up the 127 and take a right on the 178 through the hills into Pahrump, and then onto Las Vegas. The Safety Patrol's scope of work is just the stretch of the race that extends from the start line to (basically) the state line southwest of the city of Pahrump.

Safety Patrol is just what the name implies. Their job is to drive up and down the course and watch for unsafe conditions such as runner fatigue and rule violations as it relates to safety. They provide follow assistance and water to runners who seem to have lost their follow vehicle. They report back to a dispatcher via ham radio frequencies. At least one repeater will be operational. They are also equipped with FRS radios on the same frequency/tone as the follow vehicles and can communicate directly with all of them. The course is broken up into stages. Each stage is assigned a Safety Patrol Unit, and then there are "Rovers" who work multiple stages that overlap the units assigned to any one particular stage. The first wave of runners is released in the morning and the last wave is released in the early evening. By mid-afternoon, the entire section of the course that they patrol is populated with runners, follow vehicles, support vehicles, emergency vehicles, and the general public as the road is open to regular traffic during the entire race.

The official B2V website is http://bakervegas.net/. If you go to YouTube and search "Baker to Vegas," you will find many videos from several different perspectives. Chad found this older video that covers some of the radio element: https://www.youtube.com/watch?v=VvBKT20XANw.

You do not need to have medical training or experience. You just need a reliable vehicle, a good VHF and UHF mobile ham radio (or radios), and the time to dedicate. Typically different members of the Safety Patrol team will either show up to the designated Safety Patrol campsite the night before the race or book hotel rooms in Pahrump. Some folks show up early on the morning of the race. Chad said he has stayed in a new Holiday Inn the past couple of years.

Chad emphasizes that this is a great opportunity to get involved in B2V, and it could lead to you returning year after year. He said the Race Organizers will pay each driver $100, plus every Safety Patrol member gets a hat, a T-shirt, and a sweatshirt that says "Baker to Vegas" on it.

Those who wish to serve in this event are encouraged to contact Blair at kd6ifg@gmail.com or at 619-417-0590, or Chad at n6nwz@cox.net or at 619-843-0661. More information is at http://www.radiobaker2vegas.org/.

"Text-to-911" Service Launches

On Wednesday, February 6, 2019, Orange County Sheriff Don Barnes joined 20 chiefs from law enforcement, fire, California Highway Patrol, and other public-safety agencies at Santa Ana Police headquarters to announce the public launch of the "Text-to-911" service, which gives the ability to send a text message to reach 911 emergency call takers from your cell phone. Dispatch centers are equipped with a feature that allows dispatchers to converse via text with those reporting emergencies. This technology has been in development for about four months in the county. The technology is available in some other regions, such as Los Angeles County, as well.

The first 911 call in the United States was placed in 1968. Last year, 1.2 million calls were placed to 911 in Orange County alone, with 80 percent coming from cell phones.

Voice calls are preferred for conveying information to the dispatcher, but Orange County residents who are hearing or speech impaired or are in a situation where they cannot call can now text "911" to receive help.

In the event of an emergency, users enter "911" in the destination field of their texting app, and in the body of the text they give their location, a brief description of the emergency, and what kind of services they need, such as medical, police, or fire. "Text-to-911" will not work with group texts, so "911" should be the only recipient of the message. 911 calls from cell phones automatically provide latitude and longitude but not an exact address. The location accuracy of a cell phone's GPS varies by carrier and make, so be sure to be as precise as possible when giving your location. Also, use plain language and avoid abbreviations and coded messages. Acronyms, emoji, emoticons, graphics, photos, or videos will not work with the service.

Sheriff Barnes said prank 911 texters would be treated just like phony calls to the emergency service, which are prosecuted as misdemeanors.

DX Engineering Introduces Ethernet RF Filters

Many radio amateurs complain about locally generated electromagnetic interference (EMI), often traceable to Ethernet cables in their ham shack. A solution might be found in the new DX Engineering ISO-PLUS Ethernet RF filters, which are very effective EMI suppressors that are quickly and easily connected inline on Cat5e or Cat6 network cables. Their patent-pending design provides common-mode RF interference and EMI noise filtering of radio frequencies from well below 1 MHz to 100 MHz and beyond. DX Engineering ISO-PLUS Ethernet RF filters have no effect on throughput; Ethernet data signal levels and speed remain unchanged.

DX Engineering ISO-PLUS Ethernet RF filters.

Electromagnetic interference (EMI), also known as RF interference (RFI), can be imposed onto your received radio and data signals from many electronic devices normally found around a residence, a radio room, or a business network. Areas of major concern are the gigabit Ethernet Cat5e and Cat6 cables used for network (LAN) connections between personal computers, printers, multi-port switches, cable modems, routers, and radio transceivers, and between many other devices.

DX Engineering ISO-PLUS RF filters, installed on both ends of Ethernet cables, work two ways. First, they can mitigate RF interference caused to the Ethernet connected device. Second, they can reduce interference to radio receivers and other Ethernet devices that is caused by RFI or EMI generated by an Ethernet connected device. ISO-PLUS filters are sold in pairs and are normally installed at each end of an Ethernet cable—one filter at the RJ-45 Ethernet plug of the first device and the other filter at the RJ-45 Ethernet plug of the second device. Each ISO-Plus comes with one 6-inch shielded RJ-45 patch cable (color may vary).

Features of DX Engineering ISO-PLUS Ethernet RF filters:

- Suppress EMI by reducing common-mode RF interference to and from Ethernet cables
- Effective from well below 1 MHz through 100 MHz (including 160 through 6 meter amateur bands)
- Support 10/100 Mbps Fast Ethernet and GbE Gigabit Ethernet with no effect on data signal or speed
- Work with Cat5, Cat5e, Cat6, and Cat6A cables with RJ-45 male connectors
- Provide common-mode RF attenuation resulting in reduced or eliminated EMI or RFI
- Each ISO-PLUS comes with one 6-inch shielded RJ-45 hookup cable (color may vary)
- Designed to be installed in pairs; offered in a two-filter package DXE-ISO-PLUS-2 or a 10-filter package DXE-ISO-PLUS-10.

K6PIO Hides in Laguna Beach

OCRACES Applicant John Pilger, K6PIO, was the fox on the monthly cooperative T-hunt on Monday, February 18, 2019. He hid by parking on the side of Laguna Canyon Road near the Laguna Food Pantry and transmitted tones on the input (146.295 MHz) of the OCRACES 2-meter repeater.

This was John's first time as fox and he chose a clever location. He said he would hide south of the 73 toll road, not near any ocean beach, west of Alicia Parkway and Crown Valley Parkway, not south or east of 1000 Steps Beach, and east of MacArthur Boulevard. A couple of the hunters were guessing that he would be near Top of the World in Laguna Beach or near Signal Peak in Newport Beach or near Canyon View Park in Aliso Viejo. Bob McFadden, KK6CUS (who was not hunting), reported on the 448.320 MHz repeater that he could not hear the fox in Aliso Viejo, which ruled out Canyon View Park. Hunters were checking out areas leading to the other suspected locations when Richard Saunders suddenly picked up the signal and quickly found the fox. Ron Allerdice, WA6CYY, after checking the Signal Peak area

At the fox's den are (left to right) Ron Allerdice, WA6CYY, Roger Kepner, W6SQQ, Richard Saunders, K6RBS (the winner), and John Pilger, K6PIO (the fox, with "K9DOG"?). Not pictured are Anthony Mascola, KJ6OKV (who arrived after Richard departed) and Ken Bourne, W6HK (the photographer).

and thinking of looking up toward Top of the World, started picking up the signal near Coast Highway and Laguna Canyon Road. Meanwhile, Ken Bourne, W6HK, and Roger Kepner, W6SQQ, abandoned their hunch of Canyon View Park and were heading down El Toro Road when they suddenly picked up the signal as they approached Laguna Canyon Road. They headed south while Ron headed north and arrived at the fox at about the same time. A few minutes later, Anthony Mascola, KJ6OKV, who had not been on an OCRACES hunt for a long time, arrived at the fox's den.

The fox's location was clever, because Laguna Canyon Road acted as kind of a "waveguide" toward the 2-meter repeater. Hills blocked the signal off of both sides of the location, and the fox could be copied only within a few degrees almost straight north or southwest.

The next hunt will be on Monday, March 18, 2019, immediately following the OCRACES 2-meter net (approximately 7:20 PM). The fox will hide on paved, publicly accessible property in a city or sector of Orange County to be announced a few days before the hunt. He will transmit tones 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. We are looking for a volunteer to be the fox, and a programmed fox box will be available.

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

Huntington Beach RACES

February 3, 2019, was the Surf City Marathon, a tradition held the morning of Super Bowl Sunday. Huntington Beach RACES mobilized a team of 33 communicators to staff net-control stations, med tents, sag wagons, roving bicycles, and multiple waypoints along the marathon route. HB RACES members provided a critical role in monitoring the health and welfare of runners, spotting and reporting incidents, and communicating the status of leading and trailing runners along the course.

Like most large events where HB RACES provides communications, there were two nets

HB RACES Members Jon Welfringer, WB6OZD, Greg Turlis, K6GAT, and Bill Rose, K6HMS (left to right), at Surf City Marathon.

running on the local HB RACES repeaters—one on 70 cm covering communications for med tents and sag wagons and a second net on 2 m covering roving bicycles and course-stationed members. APRS was used to track the sag wagons and roving bicycles to efficiently deploy them to needed locations. Net control was co-located with public safety to effectively communicate reported issues between them.

This year proved a little more challenging than usual, with the event taking place during one of the recent rain storms. HB RACES members came prepared for the weather and were able to execute their duties without issue.

Westminster RACES

On Saturday, February 9, 2019, Westminster RACES participated again in the annual TET Parade held along Bolsa Avenue in the City of Westminster. Although the route of the parade is relatively short, the parade had 99 entries and is seen around the world via Vietnamese TV coverage from local stations.

Westminster RACES members were joined by radio operators from West County CERT and Fountain Valley RACES and from the local community. Radio Officer Chi Nguyen, KE6MVS, despite the occasional heavy rain, rode his bicycle back and forth along the route, seeing to the needs of his personnel by delivering snacks and water to the two-man teams assigned their locations by the Westminster Police Department along the route and in other strategic areas. Acting as net control was Assistant Radio Officer Adam Valek, N6HVC, at the police Command Post.

Beyond keeping the Command Post apprised of the flow of the parade and of minor emergencies by parade viewers, the team answered questions about the purpose of the road closures required for the parade and information about the progress of the parade, and gave directions to motorists on how to best maneuver around the road closures to get to their destinations.

Team members posted along the actual parade route or near the staging and finishing areas were able to enjoy the beauty, pageantry, and excitement of the parade. Others, unable to see the parade, were certainly able to hear the beating drums, the chants of parade participants, and the tens of thousands of firecrackers set off as part of the celebration.

Most of the radio operators along the parade route stood their entire shift that began with the Police Department briefing at 6:30 AM until they were allowed to stand down from their posts at 1:45 PM. A few, having worked the parade in previous years, were wise enough to bring along with their traditional radio and preparedness equipment chairs or stools for a few minutes of respite from the long hours on their feet in the cold and wet weather. 14 radio operators recorded 105 volunteer hours serving the community of Westminster.

Westminster RACES members with Sgt. Drinnin (right) at 2019 Westminster TET parade.

March 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2 Weekly 60 m ACS Net
3	4 Weekly 2 m ACS Net & OCRACES Meeting	5	6	7	8	9 Weekly 60 m ACS Net
10 Reserve Bureau General Membership Meeting	11 Weekly 2 m ACS Net	12	13	14	15 Orange County Amateur Radio Club Meeting	16 Weekly 60 m ACS Net
17	18 Weekly 2 m ACS Net & Cooperative T-Hunt	19	20	21	22	23 Weekly 60 m ACS Net & Baker to Vegas
24 Baker to Las Vegas Challenge Cup Relay	25 ACS Nets on Five Bands & Cal OES Nets	26	27	28	29	30 Weekly 60 m ACS Net
31						

Upcoming Events:

- **March 4:** OCRACES Meeting, 1930 hours, OCSD Communications & Technology Division, 840 N. Eckhoff Street, Suite 104, Orange

- **March 10:** OCSD Reserve Bureau General Membership Meeting, 1000-1415 hours, OCSD Training Academy, 15991 Armstrong Avenue, Tustin

- **March 15:** Orange County Amateur Radio Club Meeting, 1900 hours, American Red Cross (George M. Chitty Building), 600 Parkcenter Drive, Santa Ana

- **March 18:** Cooperative T-Hunt, 1920 hours

- **March 23-24:** Baker to Las Vegas Challenge Cup Relay

- **May 4:** ACS Radio Rodeo, 0900-1100 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

RACES Program Coordinator
(Emergency Comm's Manager)
Lee Kaser, KK6VIV
714-704-8080

Radio Officer (Lieutenant)
Scott Byington, KC6MMF

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

Assistant Radio Officers (Sergeants)
Jack Barth, AB6VC
Ernest Fierheller, KG6LXT
Bob McFadden, KK6CUS
Tom Tracey, KC6FIC

County of Orange RACES

OCSD/Communications & Technology
840 N. Eckhoff St., Suite 104, Orange, CA 92868-1021
Telephone: 714-704-8080 ● Fax: 714-704-7902
E-mail: lkaser@ocsd.org

County of Orange RACES

OCSD/Communications & Technology
840 N. Eckhoff St., Suite 104,
Orange, CA 92868-1021

Telephone – 714-704-8080
Fax – 714-704-7902
E-mail – ocraces@comm.ocgov.com

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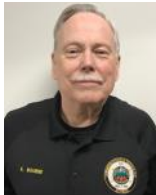http://www.ocraces.org
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Questions or Comments?
Contact *NetControl* Editor Ken Bourne, W6HK
w6hk@ocraces.org

*"W6ACS ...
Serving
Orange County"*

Meet Your County of Orange RACES Members!

Officers ➜
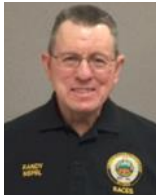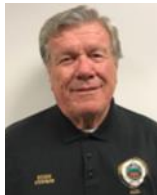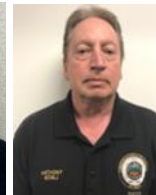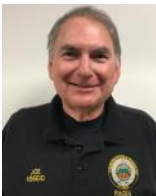
Ken Bourne W6HK	**Scott Byington** KC6MMF	**Jack Barth** AB6VC	**Ernest Fierheller** KG6LXT	**Bob McFadden** KK6CUS	**Tom Tracey** KC6FIC
Randy Benicky N6PRL	**Roger Berchtold** WB6HMW	**David Corsiglia** WA6TWF	**Ray Grimes** N8RG	**Walter Kroy** KC6HAM	**Martin La Rocque** N6NTH
Matt Luczko KM6CAO	**Don Mikami** N6ELD	**Fran Needham** KJ6UJS	**Harvey Packard** KM6BV	**Tom Riley** K6TPR	**Tony Scalpi** N2VAJ
Joe Selikov KB6EID	**Robert Stoffel** KD6DAQ	**Ken Tucker** WF6F	**Tom Wright** KJ6SPE		**Lee Kaser** KK6VIV