February 2015

County of Orange RACES
NetControl

Newsletter of the County of Orange Radio Amateur Civil Emergency Service

The Next OCRACES Meeting Is

**February 2, 2015
1930 Hours**

**Orange County Fire Authority
1 Fire Authority Road
Irvine**

COML Activity and OCFA Comm Tour

Orange County Sheriff's Department
Communications & Technology Division

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

Do Lights Cause Interference?

Some radio amateurs as well as public-safety communicators and cellular customers have reported that LED lights and fluorescent lights are causing interference. As a result, the National Public Safety Telecommunications Council (NPSTC) has requested information on interference caused from some LED and fluorescent light system ballasts.

The FCC issued an order in 2013 directing General Electric to make some changes to their LED lighting transformers, due to interference complaints.

An article in *PC World* last year stated that fluorescent lights at Ernst & Young Plaza, a 41-story tower near the heart of downtown Los Angeles, interfered with the Verizon Wireless 700-MHz network, according to a citation issued by the FCC.

High-power grow lights are sources of radio interference. They are typically over 1,000 watts and employ electronics that can act as ballast or perform some other vital function. They can cause interference more than 1,000 feet away.

If you track down interference from grow lights, be careful about confronting the owner—and be diplomatic if you do. They are often used for growing marijuana, but they also have other uses, such as growing indoor vegetables and ornamental and exotic plants. Grow lights exhibit some identifiable characteristics, such as broadband noise, especially on 40 meters, propagation over distances greater than FCC Part 15 limits, controlled by a timer for 12 hours

on and 12 hours off (or some other cycle), noisier with less than a flat spectrum during the first five minutes after turn-on, and mostly vertical polarization. If used for growing marijuana, the grow time is about 6 to 8 weeks; and the lights may be shut off for a few days during harvesting, until new plants are ready.

The ARRL has some excellent suggestions about handling this situation. When discussing interference with a neighbor, be diplomatic and never suggest what you think the cause might be, especially if you think it's grow lights. Just let the neighbor know that the source of interference appears to be in their home. You could even demonstrate this with a portable receiver. Use good judgment. If you suspect a grow light is the interference source, you might not want to approach the neighbor directly.

If you have a good relationship with the grow-light neighbor, you could suggest adding filters and chokes to the ballast cables (both the AC and the lamp side of the ballast). For more information, go to http://www.w0qe.com/RF_Interference/grow_light_electronic_ballasts.html and to http://tomthompson.com/radio/GrowLight/GrowLightBallastFilter.html. Be sure the components are properly rated for the current and voltages involved.

ARRL recommends using toroids at HF rather than split ferrites, beads, and clamp-on cores. Wrap the cable around the toroid core about eight or more times, and keep the toroid as close to the interference source as possible. A good mix for HF suppression is type 31 ferrite.

Emergency Management Offers EOC Training

OCRACES members and all County of Orange Employees are designated as Disaster Service Workers and may be called upon to participate in exercises for preparedness or activation of the County's Emergency Operations Center (EOC) in the event of a disaster. Training opportunities are available to acquaint you with the EOC, the California State mandated Standardized Emergency Management System (SEMS), as well as your role during emergencies and exercises.

The 2015 Emergency Operations Center Training Calendar and a full description of all available courses, as well as a registration form, may be accessed on the "Forms" page on the OCRACES Web site at http://www.ocraces.org/forms.html. Below are descriptions of some of the courses and when they are offered:

Introduction to ICS, SEMS, NIMS & EOC Orientation
This course is mandatory for all County EOC response personnel.
This introductory course is intended to give participants a basic overview of the Incident Command System, Standardized Emergency Management System, National Incident Management System, and an orientation to the basic functions of the County Emergency Operations Center.
Tuesday, January 13, 1000-1200; Wednesday, April 22, 1330-1530; Thursday, June 11, 1000-1200.

EOC Operations Section Training
Target Audience: All personnel who may respond to the Operations Section within the EOC and those interested in learning about the Operations Section.
Course Overview: This course is designed for those who may support an Operations Section position within the EOC during an exercise or activation. Training will include an overview of the Operations Section, protocols, position checklists, and hands-on practice within each branch. Enrollment is open to all County employees and Operational Area Partners.
Wednesday, May 27, 1000-1200.

EOC Logistics & Finance Section Training
Target Audience: All personnel who may respond to the Logistics Section within the EOC and those interested in learning about the Logistics Section as a whole. All personnel who may respond to the Finance Section within the EOC and those interested in learning about the Finance Section as a whole.
Course Overview: This course is designed for those who may support a Logistics & Finance Section position within the EOC during an exercise or activation. Training will include an overview of the Logistics & Finance Section, an overview of the Branches within Logistics & Finance including protocols, position checklists, and hands-on practice. Enrollment is open to all County employees and Operational Area Partners.
Thursday, March 19, 1000-1200.

WebEOC Orientation
Target Audience: This introductory course is intended to give participants a basic overview of the WebEOC Incident Management System tool. Positions within the EOC who may use WebEOC are encouraged to take this course to become more accustomed to the use of the system.
Course Overview: WebEOC Overview is a 2-hour class on the WebEOC Incident Management System used in Emergency Operations Centers during a disaster. The class will be a hands-on tutorial covering login procedures, Activity Logs, Significant Events, Operational Area Events, the Jurisdictional Information Management System, and Resource Manager. Prospective students are expected to be proficient and comfortable with computers and navigating the Internet. Enrollment is open to all County employees and Operational Area Partners.
Tuesday, February 24, 1000-1200; Thursday, April 9, 1330-1530; Wednesday, June 24, 1000-1200.

San Onofre Nuclear Generating Station (SONGS) Emergency Planning Overview
Target Audience: All personnel who may be assigned a position in the EOC during an emergency situation at the San Onofre Nuclear Generating Station (SONGS) and those with an interest in SONGS decommissioning activities.
Course Overview: In June of 2013, Southern California Edison announced the closure of the San Onofre Nuclear Generating Station (SONGS). SONGS has been in a decommissioning status and SCE is requesting exemptions from their current operating license. Once the license exemptions are approved, the Orange County SONGS Emergency Response Plan will change. This course will provide details about current plant conditions, future emergency planning efforts, and public information messaging. Enrollment is open to all County employees and Operational Area Partners.
Wednesday, March 25, 1330-1530.

Next OCRACES Meeting: February 2 at OCFA

The next OCRACES Meeting is on Monday, February 2, 2015, at 7:30 PM, at Orange County Fire Authority, 1 Fire Authority Road, in Irvine (intersection of Jamboree Road and Tustin Ranch Road). All OCRACES members are asked to wear their Class B uniforms (black polo shirt, black pants, black T-shirt, black shoes, and black socks) to this meeting. David Paschke will give a presentation on COML (Communications Unit Leader) activity during a fire activation. This will be followed by a tour of the OCFA communications center.

KF6PRN Hides in Costa Mesa

OCRACES Member John Bedford, KF6PRN, was the fox on the cooperative T-hunt Monday night, January 12, 2015. He hid in the back of the parking lot of Fairview Community Church at the northwest corner of Fair Drive and Fairview Road, across the street from the Orange County Fairgrounds.

The first hunter to find the fox was Bob McFadden, KK6CUS, from OCRACES. Next to arrive was Ron Allerdice, WA6CYY, from Costa Mesa. The last hunter was Ken Bourne, W6HK, from OCRACES, with his son Don Bourne, KB6TVK, from Santa Ana.

After the hunt, the hunters and the fox met at Coco's Bakery Restaurant on Harbor Boulevard in Costa Mesa.

The next cooperative T-hunt will be held on Monday, February 9 2015, immediately following the OCRACES net on the 146.895 MHz repeater. The fox will begin transmitting at approximately 7:20 PM on the input of the repeater (146.295 MHz). Hunters will compare bearings on the 449.100 MHz repeater, and are encouraged to beacon their positions via APRS

OCRACES Member John Bedford, KF6PRN, poses with the fox box after all T-hunters found him in Costa Mesa.

throughout the hunt. The fox again will be John Bedford, KF6PRN, hiding in a sector of Orange County to be announced before the hunt.

The cooperative T-hunts provide excellent practice in working together to find the source of interference. 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. A 4-MHz offset attenuator, also available from Arrow Antenna and HRO, can be useful when close to the fox, to prevent receiver overload. 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 or tune slightly off frequency when dealing with extremely strong signals. Some hunters use the DF2020T radio direction finder kit, available from Global TSCM Group, Inc. (http://www.kn2c.us). Other useful tools are the Foxhunt app for iPhones and the Triangulate app for Android phones. For some good information on T-hunting, see http://www.homingin.com/.

Santiago Peak DMR System Goes on the Air

A DMR (Digital Mobile Radio) system became operational on January 25, 2015, on Santiago Peak, which is much easier for OCRACES members with DMR HTs to access throughout Orange County than the Palos Verdes, Mt. Lukens, and San Dimas sites. The Santiago Peak system on 446.820 MHz is owned by the PAPA System, and has the following talk groups: Local; Regional; SoCal 1 PTT; SoCal 2-PTT; SoCal; CenCal-PTT; NorCal 5250-PTT; CAL 1-PTT; CAL 2-PTT; California; Southwest; North America-PTT; Worldwide English-PTT; World Wide-PTT; Comm 1; TAC 310-PTT; Parrot-PTT; and Audio Test-PTT. The PTT talk groups are on for 10 minutes (20 minutes for World Wide and 5 minutes for Audio Test) after key-up. The other talk groups are always on. See http://www.papasys.com for information on how to join and dues structure, and http://caldmr.org/ for information on California's DMR network (including streaming audio).

Cal OES Describes EMCOMM Mutual Aid

Mutual Aid

An innovative feature of the Cal OES structure (beginning in 1917) was the state's mutual aid system, which itself had its beginnings in 1938, and its basic structure is still intact today. The Master Mutual Aid Agreement, signed by all 58 counties and most cities, who have been, and remain, key players in this endeavor, created a formal structure where each jurisdiction could retain control of its own personnel and facilities (including EMCOMM) but could still give or receive help whenever needed. The agreement also obligated the state to provide available resources to assist local jurisdictions in emergencies. This formal structure is the Mutual Aid Region (MAR). Initially there were ten but in the early 1950s they were reorganized into the six existing Mutual aid Regions. In the late 1980s, the three Administrative Regions (Coastal—MAR II; Inland—MARS III, IV, and V; and Southern—MARS I and VI) were added and each includes a Regional Emergency Operations Center (REOC).

The county unit functions as the Operational Area (OA), which is the intermediate level of the state emergency services organization. This consists of a county and all political subdivisions within that county area coordinating the provision of mutual aid for its subdivisions. This includes properly registered EMCOMM Units. The Cal OES REOC of a respective Administrative Region coordinates between the OAs and the State Operations Center. There is no individually self activated mutual aid response. This must be initiated from within the OA, or a subdivision, within the above structure.

For law enforcement, the County Sheriff serves as the Operational Area Law Mutual Aid Coordinator. The Regional Law Mutual Aid Coordinator is then selected from those for each Mutual Aid region (LE RMAC).

Likewise, the County Fire Chief serves as the Operational Area Fire Mutual Aid Coordinator. Coordinators of each of the six Mutual Aid Regions elect a fire chief from within their respective region, to serve as Regional Fire Mutual Aid Coordinator (Fire RMAC).

Depending on the severity of an incident and the mutual aid required, the OES Emergency Services, Law and Fire and Rescue Coordinators may be located in an OA's Operations Center or even at their desk at work. A Regional Telecommunications Coordinator (the link to EMCOMM Mutual Aid statewide) will work with these others as required.

If an OA's request for mutual aid assistance (including EMCOMM) cannot be filled at the Administrative Region, they will be forwarded to Cal OES Headquarters (or the State Operations Center, Law Coordination Center or State Fire Coordination Center, if activated). They will either be filled with Cal OES resources, those from a local jurisdiction, from another Cal OES region, another state agency, or directed to a private vendor. If the request cannot be filled at the state level, either because the state system is overloaded or the needed resource is highly specialized, the request can be forwarded on to the federal government (FEMA).

Most jurisdictional public-safety disciplines have mutual aid agreements of some type with like adjacent jurisdictional disciplines. The closest law or fire entity may be outside of a jurisdiction but next door to an incident within that jurisdiction. The appropriate Cal OES regional staff are notified if this response becomes an extended one.

The California Mutual Aid Program, channels of coordination, and mutual aid discipline systems are shown in the table at left. Some may still be works in progress.

California Mutual Aid Program
Mutual Aid Discipline Systems and Channels of Statewide Mutual Aid Coordination

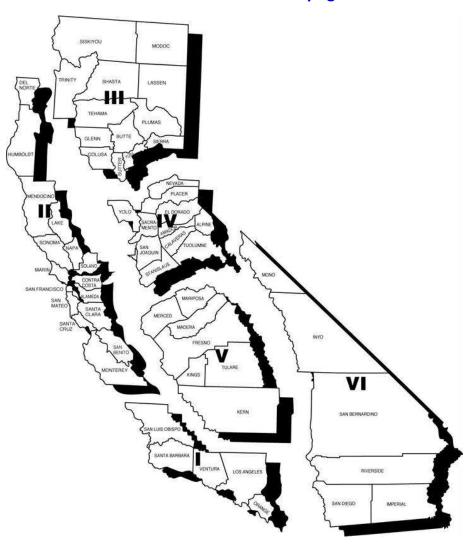| Coordinated by state Cal OES			Coordinated by EMSA
Fire and Rescue	**Law Enforcement**	**Emergency Services**	**Disaster Medical**
Fire Mutual Aid System	Law Enforcement Mutual Aid System	Emergency Services Mutual Aid System.	Disaster Medical Mutual Aid System.
Urban Search and Rescue System	Coroners Mutual aid System	Emergency Managers Mutual Aid System	
	Search and Rescue Mutual Aid System (non urban)	Public Works Mutual Aid System	
		Volunteer Engineers Mutual Aid System	
		Hazardous Materials Mutual Aid System	
		Water Agency Response Network (WARN)	

EMCOMM Mutual Aid *Continued from page 4*

Mutual Aid for EMCOMM

EMCOMM Mutual Aid will follow the same paths as the jurisdiction public-safety discipline they work for. However, an important point to remember is that the Emergency Services function within a jurisdiction may be assigned by the board of supervisors to jurisdictional Law Enforcement or Fire and Rescue. This means the EMCOMM mutual aid would be accomplished via Emergency Services and NOT via Law Enforcement or Fire and Rescue.

State Map Showing the Administrative and Mutual Aid Regions

Since there were few airports in the 1950s (before the freeway system) that were capable of handling the logistics of a major mutual aid response, the requesting counties needed resources to be efficiently moved as required over good primary roads. This is why the Regions are formed as they are. This road system (much improved today) is still extremely vital to effective mutual aid. This can bee seen by looking at any road map.

Lighthorse Offers "RF Calculator" App

The free "RF Calculator" app from Lighthorse Technologies will work on most smartphones (iOS, RIM/Blackberry, Android OS, Nokia S60. It is also available to use on the Web at http://rfcalculator.mobi/. It offers equations for Velocity of Propagation, Free Space Wavelength, Time Delay, Characteristic Impedance, Electrical Length, VSWR Power, Radiated Magnetic Field from a Loop Antenna, Power Density & Field Level, Power to Generate a Known Field, Circular Waveguide Attenuation, and Gain from Antenna Factor. Antenna Gain, EIRP (mW and dBm), and many more. The app can be downloaded from http://rfconnector.com/rfcalculator-app-press.php.

Radiated power conversions include EIRP (mW), EIRP (dBm), ERP (mW), ERP (dBm), dBµV/m at 3 m, and dBµV/m at 10 m.

Field-strength conversions include V/m, dBµV/m, dBµA/m, pT, dBpT, Tesla, Gauss, A/m/ mW/cm^2, and W/m^2.

Other useful material that can be downloaded from the rfconnector.com Web site includes not only their extensive catalog of RF connectors but also an *RF Connector Guide*, *RF Cable Guide*, *RF Equations*, and *RF Microwave Community*. Their RF connectors are available for the automotive, broadband, wireless infrastructure, wireless LAN, industrial, and instrumentation markets. The RF Connector Guide is a cross reference of connectors (IPX, SMA/RP-SMA, SMB, SMB (FAKRA), SSMB, SMC, MCX, MMCX, MC-CARD, BNC, TNC/RP-TNC, Type N/RP-N, UHF (PL-259), Mini-UHF, Type F, Type G, and 7/16th, showing maximum frequency, to applications.

RACES/MOU News from Around the County

Hospital Disaster Support Communications System (HDSCS)

HDSCS founder April Moell, WA6OPS, is featured in a *QSO Today* podcast by Eric Guth, 4Z1UG. In their 70-minute conversation (QSO), April tells how HDSCS got started, how it grew, how it has helped hospitals, and what lessons the group has learned in 35 years. The interview is available for listening and/or downloading at the *QSO Today* Web site at http:// www.qsotoday.com/podcasts/wa6ops.

Huntington Beach RACES

Huntington Beach RACES supports the annual Surf City Marathon every year, which will take place on Sunday, February 1, 2015, from 0600 to 1300 hours. (This is the same day as the Super Bowl, but participants will be home in time to watch it.) HBRACES provides health and welfare communications; runner transportation communications, APRS, ATV, and medical aid communications assistance. They operate from a command center with HB Fire, PD, Marine Safety, and event officials. Traditionally they are very busy and always have a number of serious incidents (usually medical) that require their coordination with Fire/ PD/Marine Safety.

This is a massive event held along the beach and PCH in the City of Huntington Beach with approximately 20,000 runners. It is also a pre-qualifying event for some of the other well-known marathons.

This year, due to heightened security concerns, HBRACES has been requested to provide more manpower than years past, and they have asked for help from City and County RACES units

Orange Section ARES

ARRL Orange Section Emergency Coordinator Bob Turner, W6RHK, is looking for four new Assistant Section Emergency Coordinators (ASECs), one for each county (Inyo, Orange, Riverside, and San Bernardino) in the Orange Section.

Essential minimum qualifications::
- Full ARRL Membership (required

by the ARRL)
- Completion of Introduction to Emergency Communications, EC-001 (or ability to complete course within six months of selection)
- Completion of FEMA Professional Development Series (PDS) (or ability to complete the series within six months of selection)

Non-essential qualifications, helpful but not required:
- Completion of Public Service and Emergency Communications Management for Radio Amateurs, EC-016
- Digital Emergency Communications experience
- Prior EC or DEC experience

The ASEC will work with and support all District Emergency Coordinators (DECs) and Emergency Coordinators (ECs) as needed within the designated county. The ASEC will provide a conduit of information from the SEC, SM, and ARRL HQ in matters regarding emergency communications policies and procedures.

The ASEC will represent and promote ARES throughout the designated county at Operational Area meetings, VOAD meetings, disaster preparedness fairs, and other organizational meetings as needed.

The ASEC will be responsible for appointing District Emergency Coordinators (with SEC approval) and Emergency Coordinators as needed within their respective county.

Send resume with cover letter to Bob at w6rhk@calprepresource.org.

County of Orange RACES

We bid farewell to OCRACES Member Sue Mickelson, KJ6LCJ, and thank her for her years of service. Sue was a dedicated member and had an excellent attendance at our meetings. She also participated in most activations and drills, and eagerly conducted tours of our van when we exhibited it at various events such as HRO Ham Jam, Boeing Safety Expo, COMEX, etc. Sue has moved to San Bernardino County, and will be missed by all OCRACES members.

February 2015

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1 *Surf City Marathon*	2 *OCRACES Meeting & Weekly 2 m ACS Net*	3	4	5	6	7 *Weekly 40 m ACS Net*
8	9 *Weekly 2 m ACS Net & Cooperative T-Hunt*	10	11	12	13	14 *Weekly 40 m ACS Net*
15	16 *Weekly 2 m ACS Net*	17	18 *Management & PM Section Training*	19	20	21 *Weekly 40 m ACS Net*
22	23 *2 m/70 cm/ 6 m/ 1¼ m ACS nets & SWACS Radio Test*	24 *WebEOC Orientation*	25	26	27	28 *Weekly 40 m ACS Net*

Upcoming Events:

- **February 1:** Surf City Marathon (Assist HBRACES)
- **February 2:** OCRACES Meeting, 1930, OCFA, 1 Fire Authority Road, Irvine
- **February 9:** Cooperative T-Hunt, 1920
- **February 18:** Management & PM Section Training, OC EOC, 1000-1200
- **February 24:** WebEOC Orientation, OC EOC, 1000-1200

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

40 m: 7250 kHz SSB (City/County/MOU Net—Saturdays, 1000 hours)
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: 147.480 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: 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)
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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Harvey Packard, KM6BV
Ralph Sbragia, W6CSP

Assistant Radio Officers (Sergeants)
Jack Barth, AB6VC
Ernest Fierheller, KG6LXT
Bob McFadden, KK6CUS
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County of Orange RACES

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Questions or Comments?
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*"W6ACS …
Serving
Orange County"*

Meet your County of Orange RACES Members!

Robert Stoffel KD6DAQ	**Delia Kraft** KF6UYW	**Ken Bourne** W6HK	**Scott Byington** KC6MMF	**Harvey Packard** KM6BV	**Ralph Sbragia** W6CSP
Jack Barth AB6VC	**Jim Dorris** KC6RFC	**Ernest Fierheller** KG6LXT	**Bob McFadden** KK6CUS	**Tom Tracey** KC6FIC	**John Bedford** KF6PRN	**Randy Benicky** N6PRL
Bill Borg KG6PEX	**Nancee Graff** N6ZRB	**Ray Grimes** N8RG	**Walter Kroy** KC6HAM	**Martin La Rocque** N6NTH	**Fran Needham** KJ6UJS	**Kenan Reilly** KR6J
Tom Riley K6TPR	**John Roberts** W6JOR	**Joe Selikov** KB6EID	**Ken Tucker** WF6F	**Brian Turner** KI6WZS	**Tom Wright** KJ6SPE	**Jeff Yost** KE7EWG