



County of Orange RACES

NetControl

August 1999



Newsletter of the County of Orange Radio Amateur Civil Emergency Service

Top Story

ElectroMagnetic Energy Hazard Training

By: Lt. Joe Selikov, KB6EID

OCRACES members received EME training given by Chief Radio Officer Ray Grimes, W6RYS at our July general meeting. The training is mandatory for all requiring access to the roof top at Loma Ridge but also provides guidelines for anyone working around equipment that generates EME. Members attending the meeting were given a test which is required for certification. All members passed the test.

The class included an overview which outlined the problems associated with EME, the scientific evidence, the law and the public controversy surrounding some of the evidence.

Also covered were the County of Orange Loma Ridge Facility Policies

which includes:

1. Roof top access doors will be locked. Only certified personnel will be allowed on the roof. EME certified RACES members must be accompanied by OCSD/ Communications personnel or the OC-RACES Chief Radio Officer.
2. OCRACES access and rooftop travel shall be limited to the OCRACES antenna rail area via the direct route from the access doors.
3. An EME notification form must be completed and filed onsite prior to accessing the roof top. This form states that you will be working within 25 feet of an antenna and if it will be active.
4. Non-OCRACES personnel shall not be permitted on the roof top.
5. Stations that transmit automatically such

Aug. Meeting

The topic for the August 2 meeting will be the County of Orange 800 MHz Countywide Coordinated Communications System. The speaker for the evening will be the County's OCSD/ Communications, Emergency Communications Coordinator Robert Stoffel, KD6DAQ.

The meeting is open to the public and will start at 7:30 PM at our normal meeting location, OCSD Communications, 840 N. Eckhoff St. Suite 104, Orange. All are welcome.

as Packet and APRS shall be turned off or terminated into a dummy load during periods when work is being performed. Other OCRACES facility transmitters must not be activated when personnel are within 25 feet of the antenna.

Upcoming Events

Aug. 2	General Meeting, Alternate EOC
Aug. 13	Deadline for <i>NetControl</i>
Aug. 26	CPRA at EOC, RACES room tour
Sept. 6	Labor Day Holiday, County offices closed
Sept. 13	General Meeting, Alternate EOC
Sept. 22,23,24	Songs Drill, Dress Rehearsal, Loma Ridge
Oct. 1,2,3	ARRL Regional Convention, Long Beach
Oct. 4	General Meeting, Alternate EOC
Oct. 16	City/County RACES Drill

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Visit the OCRACES Web Page @ <http://www.ocraces.org>
(Back issues of *NetControl* now available on the OCRACES Web Page)

Captain's Corner

By Ray Grimes

I am awed at the knowledge and abilities of OCRACES members. Given time and money, there are very few technical challenges that couldn't be met by our members. The OCRACES EDIS system is one such project. A special thanks to Lt. Mike Krueger and Sgt. Dave Boehm for their tremendous efforts in moving this project so far along. Another thanks to Jack Barth and County Technician Jim Henderson for their work on the OCRACES transmission line installation project at Loma Ridge. Whether it's the Tri-Agencies ATV Project, the OCRACES online server/router, APRS sys-

tem, OCRACES can make it work! Though not technically technical projects in the strictest sense, special recognition is also deserved for Joe Selikov as Editor of Net Control and for Tom Mirabella and Ken Mirabella for supporting the popular OCRACES web page.

There are undoubtedly many other good and dedicated people out there who would like to become OCRACES members. I challenge each of you to make contacts with ham operator friends and associates and get them interested in OCRACES. Your success in bringing in

new members assures the total success of OCRACES. An increased membership will help reduce your workload and duty commitments as OCRACES members and can infuse new ideas and technical expertise.

I will be on vacation and traveling for business in the next several weeks. I have asked Assistant Chief Radio Officer Ken Mirabella to stand in my place during my absence. Ken, as always, will serve you well, providing great insight and management abilities.

ECC News and Views

by Robert Stoffel

I open this month with a "farewell" to Dan Welch, W6DFW, who has resigned from OCRACES and accepted a position with Anaheim RACES. We wish to thank Dan for his participation the past couple of years and offer good luck in the future.

July has been a slow month for OCRACES, with only a few activities to report. First, thanks to Chief Radio Officer Ray Grimes for an excellent presentation at the July RACES meeting. The various aspects of RF hazards, including a discussion of the Loma Ridge EME policy was presented. All OCRACES volunteers are required to complete this training. Ray will be providing a "make-up" session for those who were not at the July meeting. I'm also happy to report that everyone passed the written test that was given at the end of the training session!

I would also like to thank our members who provided staffing to the Amateur Radio booth at the Orange County Fair on both Saturday July 24th and Sunday July 25th.

The County of Orange is preparing to implement a centralized volunteer web site dedicated to the various volunteer programs of our county. OCRACES will have a special page on this site. Thanks to Harvey Packard, Joe Selikov and Roger

Woodcock for helping this cause by "posing" for various photos that will be used on the web page and/or in a brochure. Ken Mirabella and myself met with the CEO representative to discuss the fine details of this project. We need good photos of OCRACES in action. If you have such a photo please provide it to me by August 15th. If you would like to provide a written paragraph on your RACES experience, we may be able to incorporate that into the page as well. The goal of this new web site is to attract new volunteers and recognize current volunteers.

A few other "behind-the-scenes" activities for OCRACES. Ken Mirabella has been working with County staff to improve the operational aspects of our 1200 MHz repeaters. The first repeater modified was Sierra Peak and is doing very well using the new parameters. Other sites will be changed in the future to these new specifications. Thanks, Ken, for taking the time to improve our communications on 1.2!

Mike Krueger has spent a lot of time at Loma Ridge recently working on the EDIS notification project. Robert Barris and most recently Harold Robinson have provided technical support and we are well on our way to making this project a reality.

Tom Mirabella has been keeping the OCRACES web page up-to-date with many recent changes.

I have also been working with Ray Grimes, Ken Mirabella and the City of Laguna Woods who is very interested in forming a RACES organization for Orange County's newest city! We are hopeful that they will have a RACES organization in place in the near future.

In the coming months we have several activities planned. Once the new Reddi-Net software is installed we will schedule our training on this system. October 16th is the date for the annual Orange County City/County RACES field/EOC exercise. All radio officers have been provided with an outline of the proposed drill plan as agreed upon at the last City/County RACES meeting. Mike Krueger is coordinating the drill and is seeking comments from all RACES organizations at this time so that the plan can be finalized. And last but not least, the Orange County Operational Area Y2K Contingency Plan has been released in draft form. We will be looking for OCRACES volunteers to "spend the New Year" with us, as we will be activated to a level that has yet been determined. So mark your calendars and join us on the 31st!

Installation of Mobile Two-Way Radio Equipment

In today's vehicles, on-board computers manage several important systems ranging from power seats to anti-lock brakes. These computers can be susceptible to radio frequency interference (RFI) from mobile two-way radio equipment. Effects of RFI on vehicle control computers can be dangerous, even fatal.

Due to the recent introduction of several new Amateur HF rigs designed for mobile operations, many hams have seen first hand what RFI can do to a vehicle. For example, the automatic door locks in one operator's vehicle would engage when the transmitter was keyed on 6m FM. In a more serious case, RFI from a 100 watt 20 meter mobile caused all four wheels to lock up when the anti-lock braking system was affected. Other reported cases of RFI have caused steering wheel pull, uncontrolled acceleration with cruise control on, and engines that stall.

To reduce the possibility of mobile two-way equipment interfering with vehicle control computers, many vehicle manufacturers have released "Mobile Radio Installation Guidelines" that are available at no cost to consumers. These 3~4 page documents contain the recommended cable routing and antenna placement and other suggestions for a safe and effective mobile installation.

Below, I've included several of these "guidelines" as published by Ford, General Motors and Daimler-Chrysler Inc. These guidelines apply to non-factory radio transmitting and/or receiving devices in all frequency bands, including HF, VHF/UHF and cellular phones.

Antennas:

- Antennas for two-way radios should be mounted on the roof or the rear area of the vehicle. Magnet-mounts may affect the accuracy or operation of the compass on vehicles so equipped.
- Use only fully shielded coaxial cable, and keep coaxial cable length as short as

No matter what you drive you will want to read this article



practical. Excess cable should not be coiled, since this creates a choke balun.

- Carefully match the antenna and cable to ensure a low Standing Wave Ratio (SWR).
- HF antennas should be mounted to the body or frame for good counterpoise and structural strength. The aluminum on most bumpers is anodized and non-conductive.

Transceivers:

- Do not mount any transceiver, microphone, speakers or any other item in the deployment path of an airbag.
- Before using screws to mount equipment, check for vehicle wiring under the carpet or behind the instrument panel which could be pinched, cut or otherwise damaged.
- One-piece transceivers should be mounted under the dash or on the transmission hump where they will not interfere with vehicle controls or passenger movement.
- Mounting remote transceivers on the floor of the trunk is not recommended. Water buildup and heat may damage the equipment.
- In all cases, provide good air circulation around the transceiver. A typical 50 watt RF output transmitter will dissipate 22 watts (@ 70% efficiency).

Cabling and Power Connections:

- Route all cables under vehicle carpets for best protection.
- Power connections should be made directly to the battery. Twist positive and negative power leads together to enhance noise immunity.
- Use grommets over any exposed sharp edges to avoid pinching or chafing of wires.
- Maintain as great a distance as possible between mobile radio power leads and the vehicles electronic modules and wiring.
- For most left hand drive cars, route cables along the extreme right hand side of the vehicle. The main wiring harness is usually on the left-hand side.

These are just a few of the many guidelines that are included in the above mentioned documents. Keep these in mind the next time you are installing your new mobile radio.

Other sources of information that may be useful in tracking down and eliminating RFI in mobile installations include *The ARRL Handbook* and *Radio Frequency Interference: How to Find It and Fix It*. Both published by the American Radio Relay League Inc, Newington CT.

Technical Interest

Emergency Contingency Planning

By: Capt. Ray Grimes, W6RYS

A recent experience at my home inspired me to write this article.

We experienced a hot water hose failure on our washing machine which is located in the garage, spraying water through some of my electronics equipment, tools, and paper documents for 3 hours before discovery. The good news is that the washing machine is not located in the house where the damage would have been greater. The other good news is that we were covered by insurance. A logical reaction to this type of home disaster would be to shut off the water to the house every time one goes out, just to be safe. A plumber advised that these water valves are not designed to be regularly operated and will fail if frequently turned on and off. He did suggest that for infrequent occasions where the homeowner is away, it would be OK to shut off the water at the wall valves or at the water main.

This event also got me thinking about water damage to businesses or public safety

communications facilities after an earthquake or fire sprinkler activation. Of course I am speaking of relatively small amounts of water, unlike the recent event in the City of Westminster where a failed water storage tank virtually washed away a local Orange County Fire Station.

Amazingly, even though electronics equipment and documents are doused with water, they can be effectively restored. The cost of doing so is not inexpensive, but then again, it is well worth the price to recover important and irreplaceable paper documents and specialized electronics systems. An important point to consider is that while electronics equipment can be replaced, there is often a significant lead time (sometimes months) and a lot longer for custom systems. Such systems recovery delays may be unacceptable, virtually bringing business to a halt, or putting a dispatch center out of operation. There are a number of disaster recovery companies who do an excellent job. These companies should be pre qualified before a disaster, with business arrangements made to promptly and automatically handle the unique emergency needs of the customer. This includes off site storage of data and a

partnership with the manufacturers of your electronics systems so that circuit board replacements or repairs using available stocked components can be made. Most of these companies are so good at what they do that they guarantee their ability to recover circuit boards that have been in salt water for up to 2 days. They can also recover soaked paper documents through quick-freezing then a specialized drying process. This is exactly the program libraries depend upon for water damage recovery. The business owner or system operator must also partner in the disaster prevention and recovery program by knowing what to do during the critical first hours after a disaster. Some recommendations by the experts in electronics systems disaster recovery are:

1. Turn off and remove electrical power to all equipment as soon as possible.
2. Control the environment by dehumidification, pumping out standing water, spilling out standing water from equipment and cabinets, physically drying equipment with towels, etc. Be sure to completely dry con-

(Continued on page 7)

ESP

Aug '99



HEAT WAVE

It can get too hot!

During an average summer, some 200 people across the country die due to heat injuries from exposure to high summer temperatures.

Clearly, heat can be a force, particularly in Southern California, where temperatures exceeding 100 degrees in the suburban valleys and 110 degrees in the low desert areas are not uncommon during the summer and fall. This past summer, high temperatures in the desert and mountain

areas of Imperial and San Diego counties claimed the lives of at least 29 people.

Heat-wave emergencies can strike very quickly. In 1995, for example, the city of Chicago's medical examiner received reports regarding the first heat-related fatalities at 9 p.m. on a Friday night. By 8 a.m. the following morning, an additional 87 people had died. These deaths were caused directly by the heat. It's uncertain, however, how many more people with heart conditions died sooner because of the heat.

Exposure to sunlight is a mixed blessing. Although sun is necessary for life, exposure to ultraviolet (UV) radiation is potentially dangerous and can damage the skin. Varied burns result from prolonged exposure to UV rays, but some people also may burn from very little exposure. UV rays can significantly keep the skin from compensating for the excess heat.

Overexposure to heat or excessive exercise in the heat also can cause other injuries. The severity of such injuries increases with age; heat cramps in a younger person may be heat exhaustion in a middle-aged person, but may be heat-stroke in an elderly person. This occurs because the person has not adapted to the heat and is unable to adjust to the changes in the body.

The *Heat Wave check sheet* on page 5 offers recommendations designed to help you avoid heat-related death and injury wherever you live, work or play.

The Los Angeles County Office of Emergency Management has a program called ESP which stands for Earthquake Survival Program. As part of that program they supply a set of articles which focus on a different hazard each month. **NetControl** will publish each month's hazard through the end of the year.

Heat Wave Check List

Heat Conditions, Symptoms and First Aid

What you might see in a heat injury

1. Sunburn is usually a first-degree burn that involves just the outer surface of the skin. Symptoms include redness and pain. Severe cases may cause swelling, blisters, fever of 102 degrees or above and headaches.

First Aid: Use ointments, as well as cool baths or compresses, for less severe cases. Don't break the blisters; if blisters do break, use a dry germ-free dressing. In severe cases consult a physician. Drink plenty of water.

2. Heat cramps often are related to dehydration. Symptoms include increased sweating with painful muscle spasms of the arms, legs and occasionally the abdomen.

First Aid: Remove the victim from the hot environment. Apply pressure on or gently massage the spastic muscles to relieve spasms.

3. Heat exhaustion is the inability to sweat enough to cool yourself. Symptoms include fatigue, weakness, dizziness, nausea or vomiting as well as cold, clammy, pale, red or flushed skin. A marked body temperature rise will not occur.

First Aid: Remove the victim from the heat. Lay the victim down and loosen the clothing. Apply cold compresses and cool the body by fanning the victim or placing the victim in a cool environment. Consult a physician if vomiting continues.

4. Heatstroke occurs when the body stops sweating but the body temperature continues to rise. Symptoms include visual disturbances, headache, nausea, vomiting, confusion and, as the condition progresses, delirium or unconsciousness. The skin will be hot, dry, red or flushed even under the armpits. This condition is a severe medical emergency that could be fatal.

First Aid: Consult a physician immediately or call 9-1-1. Remove clothing and place victim in a cool environment, sponge the body with cool water or place the victim in a cool bath. Continue the process until temperature decreases. DO NOT PROVIDE FLUIDS to an unconscious

victim.

Preventing Heat Injuries

What you can do to prevent heat injuries

- Avoid the sun from 10:00 a.m. to 3:00 p.m. when the burning rays are strongest.
- Reduce physical activity.
- Wear a wide-brimmed hat and light colored, lightweight, loose-fitting clothes when you're outdoors. This type of clothing reflects heat and sunlight, which helps you maintain a normal body temperature.
- Avoid sudden changes of temperatures, (i.e., air out a hot car before getting into it).
- Avoid hot, heavy meals that include proteins. They increase your metabolism and water loss, and raise your body's natural way of cooling.
- Set your air conditioning thermostat between 75 and 80 degrees. If you don't have an air conditioner, take a cool bath or shower twice a day and visit air-conditioned public spaces during the hottest hours of the day.
- Drink plenty of fluids even if you aren't thirsty. Eight to 10 glasses of water a day are recommended. Drink even more if you are exercising or working in hot weather.
- Do not drink alcohol or caffeine since they are diuretics (i.e., promote water loss).
- Use a sunscreen with a sun protection factor (SPF) of at least 15 if you need to go out in the sun.

Extracted and adapted from "Heat Illness Prevention," American College of Sports Medicine, Indianapolis, IN.

Committee Reports

Visual Communications

Coordinator: Jim Carter (WB6HAG)
Web page:
[http:// www.qsl.net/wb6hag/](http://www.qsl.net/wb6hag/)

Tri-Agency Update - The Tri-Agency program still remains on hold.

Coax Pull - Jack Barth (AB6VC) has been busy coordinating the installation of additional coax lines into our RACES room on Loma.

This will support future growth of ATV and other communication needs. Thanks Jack for your efforts!

RF Amplifiers - We have added a 150 watt portable ATV amplifier to our 400 MHz equipment. This will ensure good field pictures on 426 MHz. A ten watt 2.4 GHz amplifier has also been acquired to improve 2.4 operating distances.

ATV Demonstration - ATV will be demonstrated to members of CPRA who will be attending a meeting on August 26, 1999, at Loma Ridge.

ATV Goes to the Fair - Jack Barth (AB6VC) and Jim Carter demonstrated ATV at the Orange County Fair on July 24th. The Helmet cam was again a big hit with the children and adults.

B2V

Baker to Las Vegas

By: Lt. Ken Mirabella, KM6YH

It's time to mark your calendars again. I know, it's too soon, but I have to inform you...

- Baker to Vegas 2000 will be held on April 15-16, 2000.
- The Challenge Cup HQ will again be the Rio Suite Hotel (Thurs-Sun \$135)
- The Finish Line will again be the Tropicana (Fri & Sat \$115.00, Sun-Thur \$80.00)

State OES

Emergency Digital Information Service (EDIS) upgrade project:

The Governor's Office of Emergency Service (OES) has operated EDIS since 1990 as a statewide, text-based emergency public information system supplementing the Emergency Alert System (EAS) and other local systems.

As we move toward the 21st century OES is taking advantage of new satellite tech-

nology to maintain EDIS as a truly state-of-the-art statewide emergency public information utility.

Over the next few months OES will be deploying special EDIS satellite receivers with computer workstations to a number of key TV, radio and other news rooms around the state. Each receiver will use a small dish (like a direct satellite TV antenna) to pick up a digital message stream from the State's OASIS emergency satellite communications system. This data stream will contain the current text messages and also digitized audio and images.

The computer will provide a programmable interface for text messages to existing news computer systems. It will also serve as an "intranet" server making the audio and images (maps and photos, for example) available at any Web-capable computer in the news room as well as at the EDIS computer itself. Each EDIS workstation will be equipped with broadcast-grade audio and alarm-relay interfaces for easy integration into broadcast facilities.

We'll also be updating the means by which authorized officials put messages into the system. Using a secure Web-based interface, authorized senders will

be able to prepare and send text messages and also to upload image and audio files for distribution over the satellite network. (We're looking at ways to integrate the audio capability into the State EAS network.)

Of course, we'll keep our existing links to the National Weather Service, the seismology labs and the statewide law-enforcement network for text input. We'll also maintain our existing digital-radio text distribution systems in the state's biggest metropolitan areas.

Art Botterell EDIS Project Manager
email: art_botterell@oes.ca.gov

LAC DCS

New Six Meter Repeater
- Mt Disappointment

LAC DCS has a New Six Meter Repeater on Mt Disappointment. The "experimental" frequency pair is: 51.98 MHz Output and 51.48 MHz Input with a PL of 100.

This is an "OPEN" repeater unless restricted for an activation, so test, experiment, try it out, and use it. I would appreciate any feed

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(Contingency Planning from page 4)

- nectors and cables as they may trap moisture. A dry air hose is available can help with this effort. Do not dry equipment at the local gas station using the air hose. Gas station air is not filtered and may contain moisture and oils.
- 3. If possible, move the equipment to a controlled, clean, dry environment free from smoke, humidity, etc.
- 4. Do not attempt to power equipment to test prior to total recovery efforts.

- 5. All equipment should be opened and cleaned of contamination and corrosion and dried using proper technical procedures by a qualified company. This must be done prior to attempts to electrically power and restore equipment.
- 6. Consider backup of critical data prior to commencement of repairs.

As a good preventative practice, operating electronics equipment should be opened twice a year and cleaned of dust.

This will minimize adherence of foreign particles which will trap moisture. Make sure that electrical junction boxes and surge protectors are raised off of flooring by 4" to 6". A wet sprinkler activation can electrify a room when the floor becomes soaked!

source: Disaster Resource Guide, Vol. IV, P. 70, Restoration Triage, Ackerman, Lawrie, E.E., CDRP

End of an Era

(LAC DCS from page 6)

back that you might have.

The main "experiment" with this "pair" is to see if we can exist with TV Channel 2 just two airline miles away ! The second "experiment" is with a co-channel repeater which is coordinated for Shirley Peak in the Fresno, CA area, but which has "re-located" into the LA-Orange Area.

73's,
Lynn Brackett

MORSE CODE ENDS AT SHIP COASTAL STATION KFS

Submitted by: Chris Storey, KA6WNK

(Synopsis of story from San Diego Union Tribune)

On Monday July 12, a 92-year-old telegraph operator sent one of the final commercial Morse code transmissions in the nation, and paid homage to telegraph inventor Samuel F.B. Morse. "What hath God wrought?," tapped out Dalton Bergstedt, W6AUH, exactly as Morse himself had done 155 years ago, bringing a historic era of communications full circle.

Dalton once managed Half Moon Bay's KFS Marine, one of four ship-to-shore stations that ended telegraph communications Monday night. Along with sending its own parting messages, the KFS office also relayed one to President Clinton, sent from the SS Jeremiah O'Brien, docked 30 miles away in San Francisco. At KFS the message was transferred to e-mail.

Radio telegraph isn't completely obsolete in the nautical world; it's still used extensively by Russian and Chinese ships.

Field Day Picture Gallery



OCRACES Training before FD set-up
(Photo taken by: Al Baird)

Control 6 and Tower
(Photo taken by: Al Baird)



Field Day Picture Gallery (cont.)



(above)
Mike, Chris and Ralph
Showing off new County Generator
(Photo taken by: Al Baird)



(above)
A little more to the left Ken.
Tower set-up
(Photo taken by: Al Baird)



(above)
John Roberts demonstrating
Natural Power
(Photo taken by: Al Baird)



(above)
CW at lightning speed.
Thanks to Bill and Larry
(Photo taken by: Al Baird)



(above) Tent City.
No sprinklers this year.
(Photo taken by: Al Baird)



(below) We can start.
The supplies are here.
(Photo taken by: Al Baird)



(above) One is a lonely number.
Thanks for all your hard work Ralph
(Photo taken by: Al Baird)

(left) Al resting after taking
All these pictures
(Photo taken by: ??)



Meetings:

General: First Monday of Month
(open to public) @ 1930 hr

Meeting Location:

OCSD/Communications
840 N. Eckhoff St. , Suite 104
Orange, Ca. 92868-1021

County RACES Frequencies

6 m: 52.62 MHz output, 52.12
MHz input, 103.5 Hz PL

2 m: 146.895 MHz output,
146.295 MHz input, 136.5 PL;
(primary net Mondays, 1900 hrs.)

2 m Packet: 145.07 MHz
(1830 – 1900 hours)

1.25 m: 223.76 MHz output,
222.16 MHz input, 110.9 Hz
PL

70 cm: 449.180 MHz output,
444.180 MHz input, 107.2 Hz
PL (private)

OCRACES Web Page:

<http://www.ocraces.org>

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Suggested Y2K Preparedness Web Sites

State OES: www.oes.ca.gov

Federal Emergency Management Agency (FEMA): www.fema.gov

The American Red Cross: www.redcross.org

United States Senate Special Committee on Y2K problem: www.senate.gov/~y2k

The President's Council on Y2K Conversion: www.Y2K.gov

Did You Know?

Asbestos and Antique Radios

By: Capt. Ray Grimes, W6RYS

Many radio hobbyists enjoy restoring old commercial and military radios. This usually involves removal and refinishing of the cabinet, cleaning and electrical restoration of the chassis, and replacement of deteriorated materials. Some of these processes can be hazardous to your health. Friable (easily crumbled or reduced to powder) asbestos was sometimes used as a thermal and electrical insulating material for radio chassis'. This is particularly dangerous as asbestos attaches to the lungs permanently and cannot be medically removed. Old broadcast and military transmitter power transformers may contain transformer oils composed of PCB's (polychlorinated biphenyls) which are listed as carcinogens (cancer causing). Asbestos is also listed as a carcinogen and a major lung irritant (asbestosis). It is not allowable to remove any amount of asbestos material from a residential or commercial structure by non-certified handlers. There are approved handling procedures which allow for legal removal and disposal of asbestos or approved mitigation (encapsulation). Asbestos in structures may be coated or painted to contain the fibers but can only be drilled, cut, or removed by specific certified processes.

PCB liquids can be removed from transformers and disposed of in a legal HAZMAT dump site. The local site operator can often provide information as to removal and transportation methods and re-

quirements.

A radio restoration expert makes the following suggestions with regard to handling of asbestos, though local regulations may dictate more controlled methodologies or may entirely prohibit non-certified removal.

- Never use compressed air to clean an antique radio chassis. This will cause the asbestos to become airborne.
- Pick a suitable well ventilated area to remove the asbestos (outdoors, for example).
- Wear a dust mask or respirator of the type approved for asbestos fibers.
- Wet the asbestos sufficiently to prevent the fibers from becoming airborne.

Gently pry out the cabinet staples which hold the asbestos to the wood. Pry up the asbestos, wetting the material again. With the asbestos fully wetted, remove it and place it entirely in a sealed plastic bag. The respirator and disposable gloves and clothing will also have to be sealed in a plastic bag for legal disposal. Contact your city or county to determine legal disposal. This article is offered as health and safety educational information only. The best method of removing asbestos from old radios is to take the entire radio to a certified asbestos removal company and have them remove it safely properly for a nominal fee.

Source:

Watkins Restorations Antique Radios

<http://www.concentric.net/~Stwradio/asbestos.htm>

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