The WACOM HAM

wishes you

Happy New Year!

January 1997 | Editor: Kevin Smith | Washington, PA

New Officers Elected for 1997

Story and picture by Kevin Smith, N3HKQ

WACOM Officers for 1997 are from left: President Paul Plants, Vice President Joe Musante, Secretary Patty Marshall, and Treasurer Kevin Smith.

Pictured at right are the 1997 officers of WACOM who were selected at the December club meeting. Paul Plants and Patty Marshall are newcomers to leadership positions, while Joe Musante is continuing as Vice President for a second term. Kevin Smith has served previously as club President. As always they may lead the club for the year but participation by the rank and file membership is vital for a successful year to be claimed.

Several issues need to be considered for the year including: resolving the club's budget deficit, study and possible implementation of a club Board of Directors, determining what WACOM can do locally to preserve use of VHF, UHF, SHF, and microwave bands for the Amateur service, finding a new hamfest chairman, as well as conducting the usual program events for the year.

The club budget deficit has been apparent for the last several years and has been paid by using the cash reserves of the club. It has been generally agreed by most active members that the deficit situation needs corrected soon either by raising dues or cutting expenses. The idea of a Board of Directors for the club has been talked about at several meetings, but needs studied on its function and would need a change in the club's by-laws to implement. The pressure by commercial concerns on the frequencies above 50 Mhz that are assigned to the Amateur Service on either a primary or secondary basis, needs addressed locally. How WACOM can assist is a matter for every member to comment. All of this on top of usual club business will make for a busy year. Your club leadership needs your support and input. Let them hear from you.

Novice/Technician Classes Once Again Sponsored by WACOM

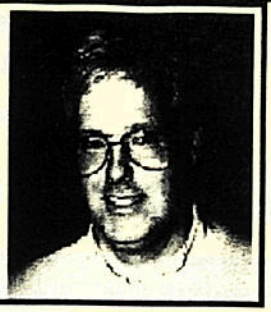
Jim Burtoft, KC3HW, club Education Chairman, is preparing another year of classes for passing Novice/Technician License. This year's classes begin Wednesday, January 8, 1997, 7:00 - 9:00 PM and again be held in the classrooms of Washington Institute of Technology. The classrooms can be entered on the bottom floor of the George Washington Hotel in downtown Washington, PA. The classes will continue for 10 weeks each Wednesday evening from 7:00 PM till 9:00 PM. The exam for Novice or Technician licenses will be part of a general VE session conducted on March 12, 1997 in the same classrooms.

Jim needs club members assistance throughout the 10 weeks giving demonstrations of the proper use of various types of radio equipment. Specific types of demonstration that Jim would like include: a crystal controlled 2 meter radio, tube style HF rig compared to a modern solid state rig, a QRP HF rig, a modern FM handheld radio, packet radio, among others. If you are interested in assisting Jim Burtoft, give him a call at 228-0546.

The VE session mentioned previously will be conducted by WACOM's VE team led by Stan Cole III, NX3P. The session is open to anyone who preregisters at least 72 hours in advance of the session. To obtain more information or preregisters, call Stan at 223-0104. Stan can also be reached through the internet at nx3p@sgi.net.

Speaking Out

by Kevin Smith, N3HKQ Newsletter Editor



Since I spouted off in last month's newsletter and at the December club meeting about "advancing the art of Amateur radio" in Washington County, I am going to devote one article in every issue of the WACOM Ham this year to potential projects that the club could consider tackling. The aim of course is to do something different and to begin occupying the bands that are in danger of being taken away from the Amateur service.

I spotted this month's article on the internet several months ago. Coincidentally, and after I decided I was going to publish it this month, I found the article published in the latest AMSAT Journal that I received only last week. I hope you enjoy the article but more importantly I hope it gets everyone thinking.

I have other articles that I gleaned from recent issues of QST, CQ VHF, and other magazines that I will publish in subsequent issues. Believe it or not they don't all have something to do with satellites. In fact most do not.

Before I leave this subject let me clarify my comments made at the last club meeting. Whatever project the club may undertake, it should be a project that, when completed, has the widest possible use by as many amateurs as possible. Assembling something that spends most of its time stored away somewhere and used infrequently is not what I have in mind. The VHF, UHF, SHF, and microwave bands need occupied fulltime.

One thing WACOM can do immediately before tackling anything exotic is set up a packet BBS. We have all the components in hand. We just need to do it. We almost got it on the air two years ago. The bulletin board was going to be located at the club room in the Washington Hotel. What stopped us was the fact that the club room is on the second floor while the antennas were to be located on the roof 9 or 10 stories up. More specifically, should the radios be close to the antennas or close to the computer. Either way its running wire through the building. If we can't figure this one out, there is something wrong with us. This packet station can be the foundation that WACOM builds upon. Any takers? I'll volunteer to help.

As you can tell from the front page, I will be serving as Treasurer for the club this year, and guess what? Its time to pay your dues for 1997. As is WACOM's custom, everyone has until March to pay and remain a member in good standing. To make it as easy as possible, you can send a check made out to WACOM for $12 to me at my home address. It is:

Kevin Smith, N3HKQ

111 Watson Drive

Monongahela, PA 15063-1045

Please give me your complete address, telephone number (if it isn't unlisted), and an e-mail address if you have one. Sometime this year, early if possible, I would like to publish a club directory that includes e-mail addresses. I have selfish reason for this. It will make it easier for me to ask for articles to publish and for articles to be sent to me.

I would like to wish everyone a Happy New Year. A new year is always a great time to make positive changes and that goes for WACOM. But it should be remembered that amateur radio is a hobby that is supposed to be fun. A hobby by definition is an avocation, something to occupy spare time. So as much as I may sound excited about what I write about, I also keep in mind that this isn't the most important thing on your mind and shouldn't be.

WACOM Committee Phone Directory

A.R.E.S.	Vacant	
RACES	Bob Ketzell, KB3IN	228-0425
EMA	Dave Smith, N3LIK	225-0346
President	Paul Plants, N3WMV	225-8637
Vice President	Joe Musante, WB3GTE	223-0897
Secretary	Patty Marshall, N3XAR	225-8637
Treasurer	Kevin Smith, N3HKQ	258-4153
Education	Jim Burtoft, KC3HW	228-0546
2mtr Net Mgr.	Dave DeMotte, N3IDH	228-8178
10mtr Net Mgr.	Joe Musante, WB3GTE	223-0897
Newsletter	Kevin Smith, N3HKQ	258-4153
Repeater	Sam Mayberry, W3CYO	222-0367
VE Testing	Stan Cole III, NX3P	223-0104

N8ULU Satellite Gateway

by Jerry Smyth
n8ulu@amsat.org

I remember when I first got licensed in June of 1992, reading the Space Operations chapter in my newly acquired ARRL Handbook. While reading this chapter, I ran across a diagram of an HT being used through a satellite gateway system. I thought "Wow, you can talk through a satellite with an HT? That's cool!"

I got started in satellite operations by joining the Henry Ford Community College ARC (K8EEH). They had a satellite station so I signed up. A couple of the guys, Mike KF8BE and Mike N8MVP started showing me the ins and outs of satellite operations. I asked them, "Have you guys ever heard a satellite gateway station?" They said "Nope, never heard one." Well, that thought was shuffled back into the file. Since then I've never heard anyone talk about an analog satellite gateway on the satellites. I'd seen few articles published about the concept. But that was four years ago.

Since then I've: set up my own analog and digital satellite station at home, became an AMSAT Area Coordinator, accepted the responsibility of the Southeast Michigan AMSAT net from Rich, N8IWJ, and even set up an Internet web page for the local AMSAT net. Hams in the area have asked to visit my satellite station or the station at Henry Ford Community College so they could see what this satellite stuff was all about. There have even been a few hams who have set up their own satellite stations as a result of these efforts. This is what it's all about, isn't it? Spread the word about what you can do on amateur satellites and hopefully recruit some new members for AMSAT-NA. This, after all is in all our best interest. More members means more financial support which results in more satellites for all of us to play on! I'm always talking about satellite operations to folks on the local repeaters and sometimes I probably bore some people. The gears are always turning; how can I get more hams involved in amateur satellite operations? Hey, that section that I read about in the ARRL Handbook. The satellite gateway!

I've recently been involved with Dan, N8DJP, on his repeater projects. I'm an electronics technician working in the automotive industry and was interested in learning more about the RF end of electronics. Dan is very knowledgeable in this area and has been converting commercial radio gear to amateur use for years, including converting Motorola Micor commercial repeaters for local ham repeater use. I told Dan about the satellite gateway concept that I had read about four years previously and said I was interested in setting up such a system using my satellite station and his 2 meter repeater. He thought this was a great idea. So the quest began.

Control

The first thing I had to think about was how to control everything. WiSP, by Chris Jackson, G7UPN, and available from AMSAT, is a very versatile program, perfect for automation of a satellite station. WiSP is primarily used for digital satellite operations but it's also perfect for the automation of doppler shift and antenna control. I wanted to be able to control the satellite gateway from a remote location and not have to worry about tracking the satellites manually. With WiSP, my station was already running automatically on the digital satellites. It utilizes the Kansas City Tracker/Tuner card to control my Yaesu G5400 antenna rotor and Icom IC820H dual-band all-mode radio. I added the satellite I chose for the gateway, OSCAR 27, to the schedule.

WiSP will tune the satellite radio to the right frequencies, correct for doppler, and at the same time control the az/el rotor while the satellite is in view. This was all I had to do to automate the satellite station. WiSP also has the ability to play a prerecorded sound (.WAV) file before the satellite comes up. The sound card is interfaced to the gateway and plays this prerecorded sound file over the repeater to announce that the satellite will be at the horizon in one minute.

The satellite station was now operational, but how can I interface this to the repeater? I needed something to control this process and a way to ID the station to meet Part 97 requirements. I pondered this idea for a while and found that Jim, WB2REM, had already developed a great controller to handle this. His design was published in the January 1995 issue of QST and I thought about using his device. However, this would have involved either making my own PC board or wire wrapping the circuit. I had not made PC board layouts this complex and didn't have the equipment to do it correctly. Previous experience told me that one false move with the wrapping tool meant hours of debugging. Building a controller shouldn't be that risky.

(Continued on page 4)

December Western Pennsylvania VE Test Opportunities

(A) = ARRL/VEC, (L) = LAUREL/VEC, (M) = MOUNTAIN/VEC,
(5) = W5YI/VEC, *P* = Pre-registration requested, *N* = No walk-ins

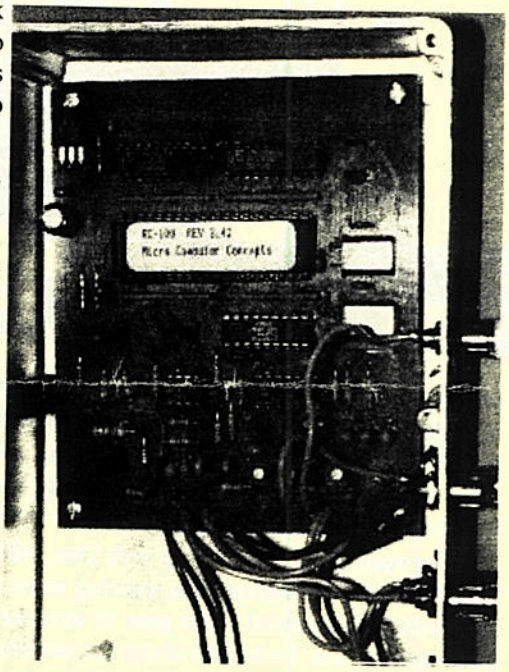
Date(s)	Location	Time	Club	Contact	Telephone
27	Indiana	9 AM	Indiana Co ARC.	Tom Ringler	412-349-8847 (A)

(Continued from page 3)

I also looked into using a radio linking system, but this didn't have all the features I needed. I spoke to Dan, N8DJP, about my dilemma and he told me about a repeater controller available from Micro Computer Concepts, which he and another repeater trustee used on a couple of new repeaters they put up. The RC-100 was $130 and provided all the features I needed for my satellite gateway. These features included repeater input/output to interface to the 2 meter repeater, remote base to interface to the satellite radio, CW ID'er, DTMF remote control, and other features.

Repeater Interface

With the station controller problem solved, I needed a 220 MHz radio to link into the repeater. The repeater I'm linking to has a 220 remote base that is used to receive the downlink audio of the satellite from my station. A 2 meter receiver was also necessary to monitor the repeater output frequency. The repeater input audio could then be uplinked to the satellite.



But there is a problem with this method. If left this way, there would be an endless loop with my link permanently engaging the repeater. To solve this problem and eliminate repeater hang time from being transmitted up to the satellite, a PL decoder needed to be installed on my 2 meter receiver. Also, a PL encoder had to be installed on the repeater transmitter with the PL active only when a user is heard on the repeater input frequency. With this configuration, the only way other satellite users would know you are on a repeater uplinking to the satellite is if you told them or if the repeater happened to ID while the user was talking. The PL acts as a filter, keeping the repeater hang time, repeater voice IDs or messages from being heard over the satellite.

I had all the necessary hardware, now to hook it up. The first thing which needed to do be done was to set up the repeater link portion of the gateway. The gateway controller needed a source for receive audio and COS. (COS is a logic signal which tells the controller to key the transmitter when receive audio is present.) In my configuration I took the receive audio from the input side of the volume control and the COS logic signal from the PL board on the 2 meter receiver.

The transmitter also needed to be connected and, in this case, a 220 HT, (a used Icom IC3AT I picked up for $140), was interfaced to the controller. The controller supplied transmit audio out and PTT logic. These signals were connected out to the microphone jack, completing the repeater link side.

Satellite Interface

Next I needed to interface the satellite radio to the controller. The remote base side of the controller was used for this process by connecting the remote base transmit audio to the IC820H, through the mic input on the microphone jack. The controller's remote base PTT logic signal also needed to be connected to the PTT input on the 820's microphone jack.

For the downlink receiver, the satellite radio's audio out (which is also available on the microphone jack on the Icom IC-820H) was connected to the controller's remote base receive audio input. The remote base COS logic was also needed and, on the 820, this logic signal is available on the data jack on the back of the radio. (The receive LED indicator lamp on a satellite radio could also be used to supply this logic signal.) Once this connection was made, I set audio levels on the radios and the controller, and programmed the controller. See fig. 1 block diagram for the controller-to-radio interface wiring.

Conclusion

Since I've had this gateway in operation (approximately 3 weeks at this writing), there has been a great amount of interest. It's nice to hear something different on the repeater than the usual traffic. Some of the hams in the area who I thought could have cared less about satellite operations have become very enthused about this gateway. Some have even talked about setting up their own satellite stations. And just think, I haven't even linked to any DX birds yet!

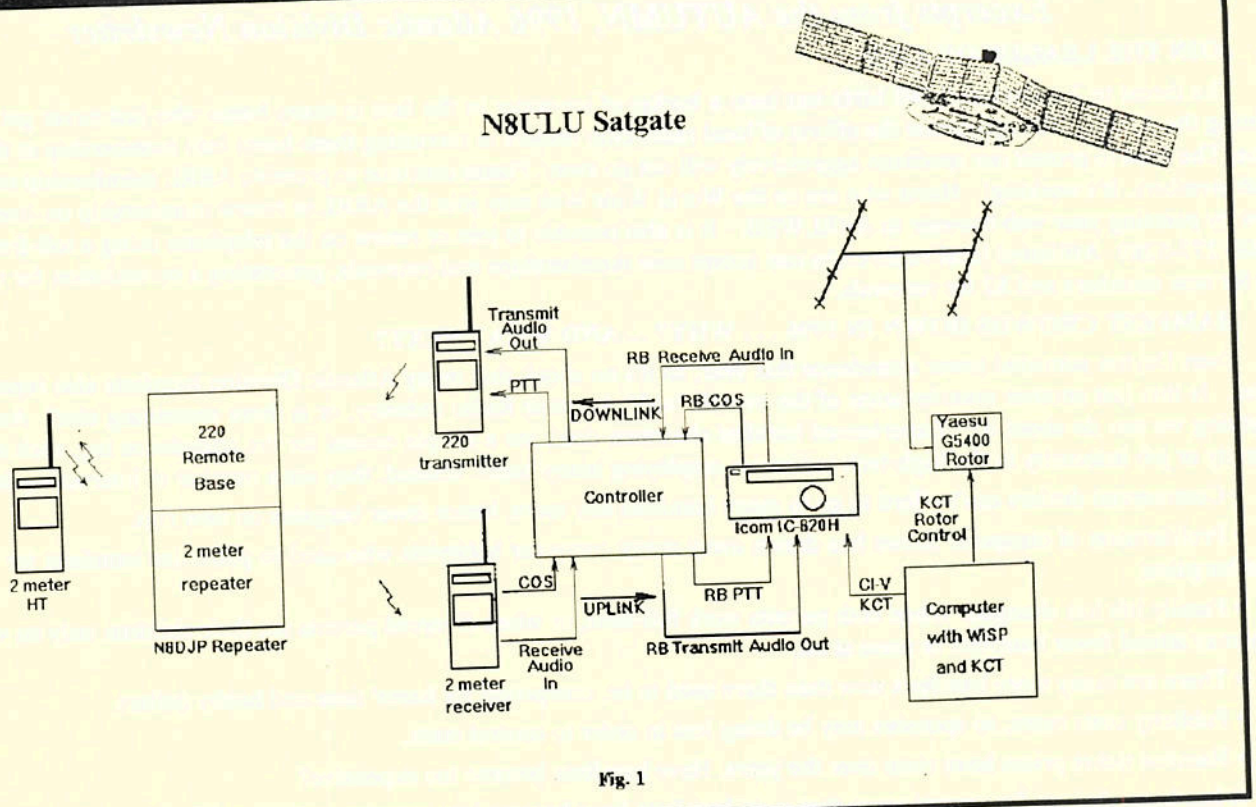


Fig. 1

Highlights From The December WACOM Club Meeting

Board of Directors - Bill Hill, W3WH (formerly W3IBT) asked for the club to consider adopting a Board of Directors as a means of conducting business. This would need a change in the club by-laws. A committee consisting of the next officers and interested members will be formed in January to study the concept.

Hamfest - Steve Elliott , KA3UDR reported that he was very satisfied with the hamfest and thanked everyone who helped. Since he is scheduled to be transferred to a new location sometime in 1997, he will not be able to be the chairman for next year's event.

VE Testing - Stan Cole III, NX3P will require a 72 hour pre-registration prior to the next session on March 12, 1997. The fee will be $6.25.

ARES - Walt Piroth, N3BKW has submitted his resignation as Washington County EC to the Section Manager. He has recommended Dave DeMotte , N3IDH be appointed to succeed him.

Education - Jim Burtoft, KC3HW announced his plans for the Novice/Technician classes to start in January. The classes begin Wednesday, January 8, 1997 at 7:00 PM in the Washington Institute of Technology classrooms. The classes will run for 10 weeks and conclude with the VE session on March 12, 1997.

Election of Officers - The following members were elected as the club officers for 1997: President Paul Plants, N3WMV, Vice president Joe Musante, WB3GTE, Secretary, Patty Marshall, N3XAR, and Treasurer Kevin Smith, N3HKQ.

The 1996 officers: President: Bob Ketzell, KB3IN; V. President: Joe Musante, WB3GTE; Treasurer: Cheryl McGrevin, N3PYC; and Secretary: Jarred Stanko, N3TKR were thanked for their service to the club.

The meeting was adjourned to begin the annual Christmas party.

Excerpts from the AUTUMN, 1996 Atlantic Division Newsletter

JOIN THE LEAGUE ON-LINE

The threat to 2 meters and 440 MHz has been a bucket of ice-water in the face to many hams who just never got around to joining the ARRL. We appreciate the efforts of local radio club leaders in recruiting these hams into membership at this critical time. The need to protect our spectrum aggressively will not go away. Please continue to promote ARRL membership among your club members. It's working! Hams who are on the World Wide Web may join the ARRL or renew membership on-line. Find out how by pointing your web browser to ARRLWEB. It is also possible to join or renew on the telephone using a toll-free number: (888) 277-5289. Affiliated local radio clubs can accept new memberships and renewals, generating a commission for the club ... $5 for new members and $2 for renewals.

HAMFEST CROWDS DOWN IN 1996 . . . WHY? ... AND WHAT NEXT?

Even Dayton admitted lower attendance this year, so it's no shock that many Atlantic Division hamfests also report smaller gates. Is this just another manifestation of the overall "soft" Amateur Radio industry, or is there something else? And is there anything we can do about it? Experienced hamfest chairmen don't see a simple causes for the attendance lag, such as sunspot scarcity or job insecurity in the high-tech industries employing many hams. Instead, they see a number of interacting factors:

• Commercial dealers can't afford to go to many hamfests any more, hence fewer bargains on new rigs.

• Proliferation of computer shows has drawn away many computer hobbyists who used to patronize hamfests for computer gear bargains.

• Family life has changed. When both parents work full-time, or when divorced parents see their children only on weekends, they may attend fewer hamfests or none at all.

• There are many more hamfests now than there used to be, competing for hams' time and hobby dollars.

• Publicity costs more, so sponsors may be doing less in order to control costs.

• Hamfest ticket prices have risen over the years. Have hamfests become too expensive?

It has been obvious for several years that most hamfests have become into morning activities. Most have dwindled by noon or 1 PM. Buyers will give half a day to hamfesting but have other things to do in the afternoon. What can sponsors do to keep the buyers on site? Delaying door prize drawings doesn't seem to work. Tasty food at reasonable prices may help. If the lunch counter only sells stuff that costs like sirloin but tastes like carpet scraps, buyers will leave the hamfest for lunch and won't come back. What can hamfest sponsors do to improve the gate? First, realize it's a trend affecting hamfests nationwide, not just a fluke or something purely local.

• Publicize aggressively, well in advance. Create a publicity plan and follow it.

• Analyze your publicity flyer. Can someone who never heard of your hamfest before easily see the "what, when, and where"?

• Do market research, by analyzing ticket stub data. Where do your buyers come from? Should you increase publicity to certain areas? Who are your buyers? Are enough club members coming? How about new hams? How about non-hams? Who do you WANT to attract?

• When and where are other area hamfests scheduled? ARRL HQ and your Director can help you on this. * Don't compete for buyers if you don't have to.

• Avoid conflicts with major religious holidays and local religious customs. Would attendance improve if the hamfest were on Saturday instead of Sunday?

• Attend comparable hamfests in your area and observe what they are doing. What works? What doesn't?

• Apply for ARRL approval as soon as your date and location are set. Benefits of ARRL approval include better publicity in QST and inclusion in the League's Internet hamfest lists. Free publicity!

• Recruit interesting vendors. Contact them early in the season, so they won't have already decided to go somewhere else.

• Price tickets competitively. Find out what comparable area hamfests are charging, and don't over-charge. Can you afford to lower prices a little and still make an acceptable profit?

• Arrange good food service. Nobody goes to a hamfest for the cuisine, but good value at the lunch counter supports your event's overall attractiveness.

• Be different, and say so. What is there about your hamfest that makes it not just the same-old same-old? A transmitter hunt? Special-interest forums? A QLF contest? QSL card checking for awards? Free refills on coffee? Someone to check the deviation on HT's? Specialty food items at the lunch counter? Whatever makes your hamfest different ... publicize it!

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Hamfest sponsors can't do anything about the overall economy, sagging sunspots, changes in family life, or computer shows. But there are ways to help ourselves. Operating a successful club hamfest today may require a lot of intelligent planning. What strategies are working for your club?

CONTEST ADVISORY COMMITTEE STUDYING NOVICE/TECH EVENT

The ARRL Contest Advisory Committee is considering creation of a contest for Novice, Technician and Technician Plus operators, tentatively dubbed Sprint NT. "Some of the basic rules have been hammered out within the committee, and we are in the process of seeking membership input to fine tune them," a CAC report notes. Proposed guidelines appear below. What do you think of these ideas?

- Time period would run from 7 AM Saturday to 1 AM Sunday EST.
- All Novice, Technician and Technician Plus frequencies may be used.
- Separate Novice and Technician winners would be determined.
- CW QSOs would count 6 points each; SSB/FM QSOs would count 2 points each.
- Multipliers would consist of ARRL sections plus one DX contact per band.
- Multipliers would count only once per band, regardless of mode.
- QSOs would count once for each band/mode.
- Only Novice, Technician and Technician Plus ops would be allowed to call CQ.
- Rules would include provision for an "Elmer" to help but not actually make QSOs.

If approved by the ARRL Board of Directors, the contest could come into being as early as next summer. The CAC welcomes comments via e-mail to cac@arrl.org. Comments may also be mailed to Contest Advisory Committee; ARRL, 225 Main St.; Newington, CT 06111

IS YOUR CLUB'S AFFILIATION CURRENT?

Has your club filed its 1996 annual report? To stay in the file of active League affiliates, your club needs to file an annual report form at least every other year. It's best to report every year, however, so that mailings from ARRL HQ and communications from Section and Division officials will be routed to current club leaders, not last year's.

If a club goes two years without reporting, it is shifted into the inactive file. Mailings from ARRL HQ are suspended. Also, the club becomes ineligible to participate in ARRL contest club competitions. It's no longer possible to refer new and prospective hams to the club.

To return to active affiliation, all your club needs to do is to submit the current year's annual report form. That takes about five minutes to fill out . To find out when your club's last report was received, contact your Affiliated Club Coordinator, Section Manager, or Director. Or ask the Club Program desk at ARRL HQ. Need a replacement copy of the report form? We can have one sent. ARRL wants to have a strong, working partnership with local radio clubs. That's in the best interests of the League, your club, and ham radio.

THE ARRL FIELD ORGANIZATION ... A RESOURCE FOR YOUR CLUB

Do you need interesting speakers for your club meetings? Does your club publicity officer want to learn how to be more effective? Do your members want to take part in emergency communications? Do you have a technical problem at the repeater site or club station that your own resident wizards can't solve? Do you have members who want to help other hams operate within the rules in a friendly, non-band-cop way?

The ARRL Field Organization is where the League meets the grass roots. Under the administrative leadership of elected Section Managers, Field Organization volunteers can help your club ... and your club members can contribute to ham radio by seeking Field Organization appointments. Many clubs in the Atlantic Division already have many members who're active Field Organization volunteers.

Your ARRL Section Manager, whose name and contact information appears on page 12 of every QST, welcomes your questions about the Field Organization. The SM also appreciates invitations to speak at club meetings, personal schedules permitting. Members of the Section senior staff may also be available to speak on subjects of interest to your members. Start by contacting your Section Manager, to find out which staff members may give programs your members will enjoy.

The League sponsors the Amateur Radio Emergency Service (ARES) and the National Traffic System (NTS), through which hams provide public service and emergency communications. Do you know when the ARES and NTS nets are held in your Section or county? Your Section Manager can help you find out. Participation in ARES and NTS is open to all hams, whether League members or not, though League membership is required in order to hold official appointments.

The WACOM HAM
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V. President: Joe Musante, WB3GTE
Treasurer: Kevin Smith, N3HKQ
Secretary: Patty Marshall, N3XAR

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2 Meter Net
145.49 Mhz
8:30 PM Local Time

January	7	KA3KSP
January	14	N3TKR
January	21	N3HKQ
January	28	N3IDH
February	4	KA3KSP

10 Meter Net
28.340 Mhz
9:00 PM Local Time

January	7	W3WH
January	14	KA3VOM
January	21	KA3KSP
January	28	WB3GTE
February	4	W3WH

The W.A.COM HAM

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