



Potomac Valley Radio Club Newsletter

August 2003

Visit us on the web at www.pvrc.org

The WAE DX CW Contest, the kick-off of the 2004 contest season and the first contest for the 2004 5 Million Award, begins August 9 at 0000Z (Friday, August 8, 8 PM EDT). Full rules at <http://server.darc.de/referate/dx/fedcw.htm>, summary on p.10

PVRC welcomes Robert Lepelletier KI3O, elected to membership June 21, 2003

Message from the President

Jack Hammett, K4VV

These are times of change in PVRC as we welcome Pete Smith, N4ZR as editor of our Newsletter. We thank Dick Wilder, K3DI, again for his seven years of super leadership of our Newsletter. Thanks to Brian, N3OC for the first email Newsletter in June. Pete will edit and distribute by email beginning in August, and Dick will help produce and distribute a mailed version of this issue. We are seeking a volunteer to handle the printing and mailing of future issues. The Newsletter is a key resource in PVRC and we look forward to the color and expanded coverage that Pete is building.

Brian Bayus, N1KC has volunteered to return as "paraphernalia" man to take care of ordering our logo items. Details are in this Newsletter and on the Web. Frank and Phyllis Donovan hosted another great event at the W3LPL Open House on June 21, 2003. See the minutes on the web site.

Our Circle Team of Rich, KE3Q, Guy Ollinger, K2AV and Jim Nitzberg, WX3B, supported by Brian McGinnis, N3OC and me, K4VV, met after the W3LPL event to work on the action to consider shifting the center of our 175 mile radius circle. The objective is to retain current active members within the circle while shifting slightly to the West and Southwest to include Winston-Salem, North Carolina, where an energetic and growing team of seventeen contesters want to join us. I have visited the leader of this team (Henry W2DZO) with Guy, K2AV, and Jim Price, WW4M. I am excited about the potential of this super team as another dynamic cell of contesting leadership on our frontier.

Several of the Circle Team will meet at the K4JA event on July 26 to attempt to firm up the map display of our revised circle.

A relook is underway by the Trustees and Officers on Membership Requirements with a view of relaxing the two meeting standard and opening up our process. There is clear agreement that some relaxation is desirable. More on this topic soon.

Congratulations to all of the PVRC initiatives in supporting Field Day (an operating event) and to the many of you in PVRC who have won important recognition in recent contests.

Please support our Treasury. Remember the W3YOZ Fowlfest event on August 16, 2003. Let's remember that this is a hobby; sometimes we need to lighten up with each other. This is fun. Serious, but fun.

Editor's Note

This is my first issue as Editor of the PVRC Newsletter. I have lots of ideas, but I'm also acutely aware that this publication will only succeed with contributions from many PVRC'ers. I'm delighted to have the help of Chuck Watts, W4XP, who has agreed to be a regular columnist on VHF contesting, and Don Daso, K4ZA, who will be contribut-

(Continued on page 3)

**Don't Forget
PVRC Fowlfest
Saturday, August 16**

Directions on page 13

VHF and Above Contesting by Chuck Watts, W4XP (w4xp@arrl.net)

VHF and Above Radio Frequencies:

Once thought of as useless, now one of the most sought after resources in the world ... use them or lose them!

Usually we contesters have very specific contests and goals in mind when we build our stations. I'd hazard a guess that a majority of PVRC members are HF, or primarily HF, oriented contesters. Contest-class, HF only transceivers seem to be the radios of choice. Yaesu FT-1000 series, ICOM IC-7XX PRO series, Ten-Tec Omni VI and Kenwood's of various models are a few examples. If there are two radios in use, they are sometimes the same model or the next step down. None of these radios have even 6-meter band capability. A few stations are equipped with radios that offer 50 MHz or 50- and 144-MHz coverage, and some even have radios that offer 430 MHz, in addition to the HF bands. So, when building the contest station, little attention is given to VHF (and above) capability. A possible exception is the installation of an omnidirectional vertical, or small Yagi antenna for routine FM simplex operation on the 2-meter or 70-cm band; routine meaning Packet, Automatic Position Reporting System [APRS] or to work a local stations simplex or through a repeater. Some of us only have VHF capability, beyond that noted above, in our cars. Does this mean that you can't at least contribute to the club's score in a VHF contest? Definitely not!

What effort is required to get involved in VHF contesting? That depends on what you have available for equipment and antennas, or what you are willing to add to your station in VHF-capable equipment and antennas. In this month's column I will stick to what you can do with what you have. (In future columns I'll be spotlighting some of our club's more accomplished VHF contesters and their stations, to give you an idea of what goes into the planning and execution of developing a

If you have an FM-mode-only station at home, use it to make contacts with PVRC stations that are in the contest. And if you have an HF+ radio, give the station a try on sideband or CW. Most serious contest stations have the capability of working you with either horizontal or vertical polarization. Most will try to work you even though the antenna polarization is "cross." If you are not asked, and you have available other bands, offer to work the station on all the bands you have. Even if you don't think the other station will hear you, give it a try. You may give the other station a much-needed contact, and the most either

(Continued on page 5)

The Toolbox by Don Daso, K4ZA (k4za@juno.com)

A lot of what we do, in the shack, up on the tower, or simply with our fellow ham friends and pals, can be considered "tinkering," in the very best sense of the word. It's simply something we do as hams. It's also a direct link to our past—to those inveterate explorers and problem-solvers who "figured things out the old-fashioned way," by trying a little of this, a little of that, such as Armstrong, who made FM work by trying things, when the black-board whiz kids said it wouldn't work.

Part of such tinkering involves tools. And while that word may conjure up images of your local home improvement center or Sears or your Dad's workshop or something equally meaningful, we're talking here (among PVRC readership) about all that, and more. We're talking ideas, tips and techniques, software and hardware, problems and solutions, including methods and mannerism and other means to some end.

This column isn't a new idea—both the YCCC and the NCJ have carried similar articles for years.

But it's an idea that should generate some traffic and interest among our group. The PVRC, as one of the premiere contest or operating clubs in the country, has a long tradition of members who have built amazing stations, and operated successfully from them, for many years. Their success has been due, in some measure, to sharing—of ideas, and tips and solutions, and so forth. There's simply never been a public forum or sounding board or "place" for that, until now.

Obviously, I'm hoping you send in things. Nothing is too large, nor too small, or trivial, to be included. This isn't intended to be K4ZA's collection of ideas. He's merely the guy collecting stuff. *What kind of things are you looking for*, you ask. Here are some examples, some tools to consider.

The PVRC mount—long detailed in the ARRL Handbook. A clever idea which enables one guy (today, of course, we'd suggest working alone on your tower is NOT a good idea) to build a beam "up in the air." I recently encountered this classic solution while taking down W6AXX's 6M beam.

Romex cable runs for rotator control—another long-time PVRC trademark solution. The six-wires available from pairing up two runs of Romex (the direct burial jacket kind) allows to mount the capacitor directly AT the rotator, eliminating the need to buy expensive eight conductor

(Continued on page 4)

WZ3AR Wins PVRC Scholarship from FAR

The Foundation for Amateur Radio has announced that the recipient of the 4th \$1000 PVRC scholarship is PVRC'er Nat Heatwole, WZ3AR. Nat has completed three years at Guilford College in Greensboro, NC, with a double major in Physics and Political Science. Congratulations, Nat!

For all 4 years of its existence, the PVRC scholarship has been entirely funded by Dick Wilder, K3DI. Dick has advised the club that he will continue to contribute to the scholarship in the future, but will not be able to carry the entire cost by himself, so it is up to the club leadership to decide whether the scholarship will continue in its present form.

Snippets and Sidebars

FD 2003 Stations That Had PVRC Involvement
by Ed, K3IXD

When I joined PVRC in 1992, one topic being discussed was PVRC is a special interest club. That interest was contesting. Today it might be called operating. Back then, PVRC members were encouraged to keep active in their local club(s) or to also join a local club. I think the same is true today although I don't hear about that anymore. With all the e-mails about Field Day 2003, I thought it was time to survey the PVRC membership via the PVRC reflector and see how many 2003 FD stations had PVRC involvement. The survey was not to see how many PVRC members participated in FD 2003.

Thanks for the responses. I received 34 calls, and three GOTA (Get On The Air) stations, that had at least one PVRC member present. Some of these stations were 1D or 1B. The classes I remember being mentioned in the e-mails were: A, B, D, E, and F.

This list includes any FD station that had one or more PVRC members. Some PVRC members traveled back to their roots. The GOTA stations are noted with "/GOTA". While this isn't a complete list, this wraps up the survey for FD 2003.

W1XX, N2PY/GOTA, W2YE, K3EF/GOTA, K3FT, K3GEG, K3PZ, W3AO, W3CB, W3FT, W3IY, W3LL, W3LRC, W3QZF, W3SO, W3TEF, W3XG, K4EU, K4LRG, K4OO, K4TS, N4C, N4NC, NR4AA, W4BFB, W4DZ, W4IY, W4NC, W4ML, W4RW, W4WS/GOTA, W4ZA, WA4JUK, WW4M, K5BMO, N8II, W8ZA

Treasurer's Report by WR3L

PVRC would like to thank the following for the donations

K1RZ, KC9LC, W3BTX, W3KX, K3RUQ, N3WK, W3OQ, K8OQL, K4OD, W4YE, N3HIH, N3OPM, K3YWE, W4EE, N4ZH, W3KHZ, KC8FS, WI3N, W2YE, W4JAT, AD3F, N4SB, N4ZR, W3AZD, K1HTV, N3UM, W3BAB, NW4V, W3BP, W4PHL, W4PNK, WR3Z, AD4L, W4JLS, W4RX, W3BZN, K4TX, AA4XU, AF4CD, KT3Y, KC4D, N8CH, W3HVQ, W4ZYT, K3SV, WX3B, N3WK, K3RUQ, W3KX, W3BTX, KC9LC AND N3RR.

Please let me know if I missed you. If you still have the envelope please drop a donation in it and send it to me.

I'm STILL waiting for new blanks to get the badges back on track. I'll look in another direction if I don't get a positive answer soon.

(Continued from page 1)

ing a variety of tips and techniques under the general heading of "The Toolbox."

If you have ideas for one-time or regular features you'd like to see in the newsletter, please let me know. I also look forward to your comments, criticisms or suggestions for improvement. By e-mail, I can be reached at N4ZR@contesting.com, or by phone at (304)728-8454. Thanks!

Special Note

The Newsletter is still in need of a publisher, whose job would entail working with a printer and the US Postal Service to do the continued mail delivery. Our postal permit expires September 1, and must be renewed at the post office of the new Publisher. If you'd like to help out, please contact me. If we are not successful in finding a new Publisher, mail delivery will have to be suspended until we do.

WAE CW is

Friday August 8 (our time)

Be There!

(Continued from page 2)

cable. I've just completed two installs here in the Carolinas using this method, and the owners thought I was truly clever, as well as appreciating the savings. Of course, I explained the genesis of the plan came from "up Nawth...."

Cold shrink insulation—with that characteristic twinkle in his eye, W3LPL handed me a funny-looking tube and said, "Do you know what that is?" When I admitted that I did not, Frank proceeded to teach me something about a new tool. And not-knowing something always inspires me to research and learn more, so I found rather quickly that there are two kinds of "shrink" tubing—cold shrink and heat shrink, each with different applications, installation techniques, and physical properties. Briefly the most obvious difference is that cold shrink is stretched over a removable core, which lets you slide it over your splice, then you unwind the core to let it contract snugly over the cable/splice.

Heat shrink requires more skill to apply, a heat source, and, unless it's the type with a hot-melt adhesive inside, may never be as weather-proof as you'd like. Cold shrink will expand and contract, maintaining a tighter seal. Silicone, used in many cold shrink products, is inherently UV-resistant, but it's not very tough. EPDM rubber cold shrink is very tough, but not as impervious to UV-rays. Clearly, for antenna/tower work, cold shrink is better suited to ham use. Cold shrink [made by 3M - ed] is now in the K4ZA toolbox.

Those are some examples of the kinds of things we'll present in this column—tools for PVRC members to learn about and use. I'm looking forward to hearing from you, with a comment, suggestion, ideas, questions, anything at all. Good old e-mail to k4za@juno.com will probably work best. Let us know what's in your toolbox!

Is there a topic you'd like to write about for the PVRC Newsletter?

We're looking for columnists, or contributors of a single article, technical or whatever.

**Just drop me a note --
n4zr@contesting.com**

PVRC Spotlight This month - W3ARS by Jim Nitzberg, WX3B



Clint Brosenne, W3ARS, can be found operating in just about every contest, helping out in public service events, and teaching hams of all ages the wonders of our great hobby! I've had the pleasure of knowing Clint for almost 5 years and you won't find a more enthusiastic, energetic ham.

Clint became interested in radios at age 8; he liked listening to the A.M. Broadcast band at night. Like many of us, his first experience "DXing" was hearing those distant stations while listening to a car radio. At age 12, Clint became serious about radio by playing "army" using hand held walkie-talkies; and by the time he reached his teen-age years, Clint became active with 11 meters.

Clint visited hamfests on a regular basis – even before he became licensed. He found some "strange" looking equipment and later realized that was amateur gear. One of Clint's first hamfest purchases was the ARRL antenna handbook – and he was off designing wire antennas!

Clint became an active public service member by volunteering for REACT, and he eventually became the chairman of the Carroll County REACT group.

Clint calls Joe Gibbs, N3QDS (Now W3POW) his Elmer. He also mentioned that several other hams were instrumental in his success: WX3B, N3SB, N3ARS, and N3WM kept the pressure up on CW until Clint passed his exam!

Clint's favorite amateur radio activity is working the "Magic band" – 6 meters.

Recently Clint and several friends worked the June VHF contest as a rover entry. Clint's other favorite contests

(Continued on page 6)

(Continued from page 2)

of you will lose is a little time. Don't have an antenna for the band? I have used my 80-meter Inverted V to make contest contacts on 50 and 144 MHz (of course, for those of you who don't know, my antennas when sitting on the ground are 335 meters [~1100 feet] MSL, and I can see the entire Potomac Valley from my front porch!). Make a simple dipole by stripping back the appropriate length of shield from a piece of coaxial cable and hang it anywhere you can. Years ago I used a 6-meter-band dipole in the closet of my townhouse in Germantown, MD and it worked surprisingly well!

“What if I'm not interested in operating the entire contest - when should I get on to do the most good for PVRC?” There is a good deal of debate on this issue. A serious contester will tell you that it is important to be on all of the time during all of the VHF contests, especially the ARRL June QSO Party. Others will say it is a waste of time to be on after midnight and up before sunrise in the ARRL September VHF QSO Party or the ARRL January VHF Sweepstakes (SS). Since the ARRL September VHF QSO Party is the next “big” VHF and above contest on the Contest Calendar (and the one you will have an opportunity to get into after this article appears), I'll give you my perspective as the 222 MHz band Captain for the Delmarva VHF and Microwave Society's, K8GP, Grid Pirates Contest Group operation.

There are a couple of times when you will probably be able to hear and work the single-op and multi-op “big gun” stations in a VHF contest. The first opportunity is within the first three hours after the start of the contest. Finding multi-operator stations like K8GP or single-op stations like K1RZ/3 is usually easy; they are loud and often found on the same frequency during the entire contest. However, single-ops tend to move around during this period to “hunt and pounce,” and get the “easy ones” out of the way. The only problem with this very active time period in the contest is that if you don't have a “real” VHF-capable station you may be covered by the often-heavy QRM.

Early evening just at sunset on Saturday or Sunday is another time to try. Propagation changes and the usually improved nighttime conditions, and reduced level of activity, may enhance your chances of working stations you may not have been able to work earlier in the contest. Sunday mornings are an especially good time to work stations. At K8GP from ~ 07:00 until ~15:00 local time, the going is very, very slow, with the possible exception of meteor scatter operations on 50 MHz in the early morning hours! Driving to church or breakfast out with the family? You should have a very good chance of working stations because by then we, as well as most other competitors, are hungry for ANY contacts. How about late night? If you're not a serious competitor, you will gain more from the sleep you get between midnight and 6 a.m. than you

will from the limited addition of contacts in your log! (Although with the use of recently developed digital modes, like WSJT and JT44 – more on these in a future article – this is becoming less true.)

What about propagation in September? You can experience just about any mode of propagation there is: Tropospheric (tropo), Thermal Inversion (inversion), E-skip (Es), Aurora (Au, not to be confused with the atomic symbol for Gold)), possibly even Field Aligned Anomaly (FAI). In the case of the first three modes, you don't need any significant amount of power to make pretty spectacular contacts. While setting up at the K8GP site on Spruce Knob West Virginia (4863 feet MSL) three years ago, there was a great tropo opening. I was able to work north-eastern Maidenhead grid squares FN41, 42, 43, 44, 54 and 55 on 50 Watts, with reports ranging from S9 to 40 dB/S9! Unfortunately this happened on Thursday night before the contest weekend! We still had good propagation during the contest (we worked three Florida Grids on 222 and 432 MHz and Chicago on 10 GHz, and into Nebraska on 222 MHz!), but nothing like the Thursday night conditions.

Four years ago there was a better-than-average Aurora, which yielded several contacts into northern New York State and Southern Canada on 222 MHz. This mode requires that higher power levels be used for best results. At K8GP, we run the legal limit output power on 50 through 432 MHz, and have the capability of 1 KW on 903 and 1296 MHz. The power and antenna arrays are available to achieve the best results on these bands, from any of the propagation modes.

There is one other group of contest stations which could benefit from your effort to get on and give out points: Rovers (and I'm not referring to canines here). The club is fortunate to have two of the top three or four competition-class Rover stations competing in VHF and above contests -- Brian Skutt, ND3F and Bill Seabreeze, W3IY. These guys are consistently in the top five, and usually first or second place on that list! Brian and Bill have built some of the most impressive stations on wheels anyone has seen. It is not unusual for either one of these “road warriors,” typically operating from 10 to 15 Grid Squares, to put 700 to 1000 miles, or more, on their Rover-Mobiles in a single weekend! Brian and Bill both have stations equipped with bands from 50 MHz through 47 GHz plus laser-light stations, and Bill's Rover station includes 76 GHz in the mix. I have trouble keeping my station on the air, and it never moves, so you can imagine how much more difficult it is to maintain a system as complex as the one's Brian and Bill have, while driving like “madmen” through some of the most unusual and undeveloped spots in the mid-Atlantic and northeast (not to mention some of the worst weather in history!)! Giving, and getting one or two band QSOs from these stations can really add up, so

(Continued on page 6)

(Continued from page 5) VHF Contesting

when you hear them on from a new Grid Square, try hard to work 'em! (You can check out Bill's Rover [known affectionately as the "**Intergalactic Roving Battle Jitney**"], and get some insight into what he does to get and keep his Rover on the road, at <http://members.fcc.net/wseab/>. Another good source of Rover-related information can be found on the Rover Resource Web Site provided by Dan Evans, K9ZF -- <http://www.qsl.net/n9rla>. Brian and Bill are the two most persistent "pushers" of general microwave activity in the area. Bill has established a "Microwave Activity Night," one night per week, and "Microwave Activity Weekend," usually a Saturday morning, that has provided a time for "old hats" to test out their gear and encouraged microwave neophytes to get on the microwave bands. These efforts have resulted in a significant increase in the number of stations operating regularly above 432 MHz, especially on the 10 GHz band.

This has been a very cursory look at VHF contesting in general, and the ARRL September VHF QSO Party in particular. I'm certain I'll have more time to research subjects, and suggestions from you on what you'd like to read about in future columns will help too.

Some particulars on the ARRL September VHF QSO Party:

- 1. Object:** To work as many amateur stations in as many different 2 degrees X 1 degree grid squares as possible using authorized frequencies above 50 MHz. Foreign stations work W/VE amateurs only.
- 2. Date and Contest Period:** The second full weekend of September. Begins **1800 UTC Saturday and ends 0300 UTC Monday (September 13-15, 2003).**

7.1.6. Top scoring club in each club competition category will be awarded a gavel.

Complete rules may be found on the ARRL Web Site: <http://www.arrl.org>

If you have suggestions or comments, please contact me at

(Continued from page 4) W3ARS Spotlight

include 10 meters, 10-10, 160 meters, WPX...in fact he rattled off so many contests that his final comment was "I like them all!" Clint is happy to operate by himself or as a member of a team. He operates frequently at WX3B's Multi/Multi efforts.

He is well known in the Carroll County Amateur Radio Club for his ability to go above and beyond the call of duty in promoting ham radio. He chairs the education committee -- which just announced a class of "harmonics" -- sons and daughters of hams! In addition,

Clint is a VE Liaison and is very active coordinating testing sessions. W3ARS also holds the title of K3PZN's field day "iron man". Clint was seen helping many of the (11!) stations set up or take down antennas -- and he has towed our club generator and kept it running for the past 3 years. He's also been quite generous lending his own directional antennas for the club field day effort.

Clint joined PVRC in 2000 because of his interest in contesting. He enjoys technical guidance from members -- especially in the areas of logging programs, antennas, and contesting techniques. Clint calls Ed, K3IXD and Dan, W3DF his contesting "elmers". He also mentioned that he enjoys operating with a very enthusiastic Mike Fisher, N3VOP.

At the W3ARS shack you'll find a main tower with many beams -- and many wires.

From tower Bottom to top:

Classic 36M 6 element tribander at 57 feet;
Stacked array of 440 (9/9 = 18 elements) at 60 feet

6 meter CushCraft 5 element at 63 feet
Home brew 2 meter (8 elements at 65 feet: similar to W3LPL design)
At the top: 5 element home brew 220 vertical (69 feet)

There are dipoles for 17/40/80/160. Rounding out the antenna farm is a 10 Meter vertical at 90 feet and a CushCraft AR-2 omni directional antenna at 70 feet.

Clint uses an Icom 706 Mark II, and a Yaesu FT-847 Earth Station as his radios.

A DX-pedition is on the horizon for W3ARS; listen for PJ7/W3ARS from St. Martin in November! Clint is fortunate enough to be traveling with Veteran DX-Peditioner David Collingham, K3LP to PJ7 later this year. This will be Clint's First DX-Pedition and you can bet he's excited. He is going to help Dave build/improve the station for their host Mort, PJ7UQ. Clint's planning to run a few phone pileups from down south so stay tuned for specifics; the timeframe is around the CQWW CW Contest.

Around the Club

Meeting minutes from the regions

PVRC Meeting at W3LPL (June 21, 2003)
Minutes by Bob Dannals W2GG

Attendees AD3F, AI3Z, K1DQV, K1EFI, K1HTV,

K2AV, K2PLF, K2UOP, K2YWE, K3DI, K3DNE, K3GEG, K3GV, K3IXD, K3RV, K3TM, K3TW, K4JA, K4VV, K4ZA, K8OQL, KA3EJJ, KB3BWR, KC3VO, KE3Q, KT3RR, N1KC, N3AM, N3FZB, N3GB, N3OC, N3OPM, N3UM, N3VOP, N3YPT, N4MM, N4ZH, N4ZR, NY3A, VE3RM, VE3WIB, W2BZR, W2GG, W3AMY, W3AZ, W3AZD, W3BAB, W3BE, W3BP, W3EF, W3EKT, W3GG, W3HVQ, W3KHZ, W3LEO, W3LL, W3LPL, W3OQ, W3RFC, W3TEF, W3YE, W3YOZ, W4EE, W4RW, W6AAN, W6AXX, WA0QII, WB3ANE, WB4FDT, WF3J, WR3Z

PVRC president Jack Hammett K4VV, called the meeting to order. The first order of business was to thank our hosts, Frank Donovan W3LPL and his wife Phyllis, for their hospitality.

K4VV introduced co-vice presidents, Guy Olinger K2AV who came up from NC for the meeting and Brian McGinness N3OC. N3OC asked for a show of hands for those who received the June PVRC Newsletter by US Mail. Brian mentioned that the Newsletter is now available electronically - either a PDF file can be sent to each requesting member via email (if you wish your NL emailed to you monthly, please let Brian know) or the text file NL is available from the PVRC web site.

N3OC has been editing the Newsletter editor following the retirement of K3DI as editor. Brian discussed that the Newsletter is undergoing some changes - new format, color pictures.

K4VV asked for the group to express its thanks to Dick Wilder K3DI for his past service to PVRC as the Newsletter editor. Jack then introduced Pete Smith N4ZR as the new editor of the Newsletter. Pete is looking for columnists to contribute to the content of the Newsletter. Pete is also asking members to send him suggestions for what they want to see in future issues.

K4VV announced the return of the PVRC "paraphernalia" man, Brian Bayus N1KC. Future Newsletters will have details on the PVRC logo items that will be available and how you can purchase them.

K4VV mentioned that there have been requests from the members to look into changing the current PVRC membership requirement that new members must attend 2 meetings prior to be voted in. Given the area encompassed by the Club and the varied schedules of its regions, to remain competitive with other contest clubs, it is thought that the membership requirement should be altered. Jack suggested that members with comments communicate with the Club trustees to voice their opinion.

K4VV said that the "Circle Committee" (KE3Q, K2AV, and WX3B) was still looking at options for relocating the center of the 175 mile radius circle that limits who can

submit scores for PVRC (ARRL requirement). Members with ideas and suggestions should communicate with the committee members.

K4VV introduced Rol Anders K3RA who made a brief presentation of the upcoming PVRC-CARA Field Day activities using the call W3AO.

Our PVRC treasurer Dave Baugher WR3L said that the Club continues to appreciate members' monetary contributions. Dave said that the response the envelopes included in US mailing of the Newsletter was good. (In the future, with emailed Newsletters, it is hoped that the members will continue their generosity.) Dave mentioned that he is still working on obtaining PVRC badges.

K4VV presented the membership application of Robert Lepelletier KI3O for approval. The application was unanimously approved.

K4VV noted two other summer meetings for PVRC. Paul Hellenberg K4JA will host a meeting at his home in Callao VA on July 26th. If you are planning to attend, please contact Paul and let him know. Marty Johnson W3YOZ will host the annual PVRC Fowlfest in West River MD on August 16th.

John Kanode N4MM presented a list of PVRC members who signed in at the Dayton Hamvention W3YOZ, KD3SA, N4AA, KI3O, K2PLF, N4MM, W3LL, W2YE, W4NL, W3BTX, W3TEF, W4HJ, WK4Y, W4MYA, W3AZD, WB3ANE, K8OQL, W3KHZ, K9GY, K4JA, W3BP, W0MAN, W4JAM, N4JED, K3RUQ, K7SV, W3UR, KM3V, W3BAB

N4MM also ask that the Club officers and trustees consider the addition of the Russian DX Contest to the list of PVRC 5M events. The RDXC does have a club competition category. K4VV indicated that the addition would be considered.

PVRC/NC Meeting Minutes
3 July 2003, Golden Corral, Dillard Drive, Cary
By Jim Price WW4M

Members in attendance Tom N4TL, Bert N4CW, Will WJ9B, Jeff NX9T, Chuck K4NYS, Bob K4HA, Pete AD4L, Jim WW4M

Note Ryan's Steakhouse is changing hands and being renovated, so until we decide otherwise we'll be meeting a few blocks down Walnut Street at the Golden Corral. Directions on <http://pvrnc.org>

Member News (abbreviated summer edition)

Tom has been waiting nearly a year for the pin and mug that he ordered from PVRC and is wondering what's up.

He's been doing some casual operating and brought along handouts with information about the interference that would be caused by the Power Line Communications (PLC, aka BPL - Broadband over Power Lines) proposal that is before the FCC.

Bert will be gone until October and unfortunately has a conflict with CQWW CW. Meanwhile he'll be active from Maine. Bert also offered a strong endorsement for LOGGER32, which supports RTTY/PSK31, awards evaluation, and contesting (be ready for a big download).

Will is looking forward to operating from NY4A for CQWW CW this fall.

Jeff NX9T saw Nate and David for Field Day (operating as NR3X). Plans to play in the IARU contest and get some wires up this summer.

Chuck has been to a few hamfests recently and had fun w/ the Smith Chart Society Field Day operation.

K4HA has been doing yet more tower work and also enjoyed doing Field Day with SCS.

Pete has been painting the sponge-walls of his shack and will be on the air for WAE. He still needs to drop 20-30 trees remaining from last winter's ice storms before the next storm hits.

Jim had fun in a non-competitive Field Day operation out in Chatham County.

Northwest Meeting Minutes for July 2003 by Bud Governale, W3LL, Chairman

The NW Region met again at City Buffet in Frederick, MD on 15 July 2003. In attendance were W2YE, KC4ATU, W3TEF, W3BTX, W0YR, K4VV, W2CDO, NE3H, N3VOP, WD3A, N3HBX, W8ZA and W3LL.

There were good discussions during dinner and after the business portion of the meeting.

>From the business part of the meeting

>Announcements

W3TEF, Roy heard from Ed, K3IXD. Ed wishes everyone his best wishes. Ed will be moving to his new home in S. C. on 01 August.

N3VOP, Mike wants everyone to come and play radio on 10 August at the Carroll County ARC Tailgate Fest held at the Westminster Agricultural Center. Talk-in on 145.41MHz.

W3LL, Bud announced activities occurring prior to our next meeting

CQWW VHF this weekend.

K4JA Open House 26 July (don't forget to RSVP)

MD QSO Party 09 August

NAQP SSB and Fowlfest 16 August

Next NW Meeting 19 August

W8ZA, Bob reminded me after the meeting that I didn't mention BRATS MARYLAND HAMFEST & COMPUTER SHOW, Sunday, July 27 at the Timonium Fairgrounds, or the

53rd ANNUAL WINCHESTER HAMFEST & COMPUTER SHOW, Sunday, August 3rd at the Clarke County Ruritan Fairgrounds in Berryville, Va.

W2YE, Dick worked about 30 Europeans on 6 meters during the last week of June using 100W. His amp wasn't working. Dick sent an email to the PVRC reflector regarding a 60 ft Rohn 45 tilt over tower available from an estate sale. Available for take down and donation.

KC4ATU - This was Bill's first PVRC meeting. He received ARRL 10M Contest

Phone certificate. A brief discussion followed regarding status of PVRC new member requirements. The BOD may have a decision in September.

W3TEF, Roy announced that W3SO had it's best ever score in the June VHF contest. They accumulated about 400K points with lots of DX. Right now W3SO is listed in third place without W3YTL scores included. See this month's CQ magazine about W3SO win last year in the CQWW VHF contest.

W3BTX, Bob had his first contact on 220 and 440 at W3SO. He worked many Europeans last week on 6 meters.

W0YR, Mike made the top 10 listing in last year's 10 Meter contest.

K4VV, Jack announced the new PVRC newsletter editor is Pete, N4ZR. Thanks Pete. A volunteer is still needed for distribution/ mailing. The newsletter will start with an electronic edition pending resolution of mail distribution. Jack also announced that Brian Bayus, N1KC has volunteered to serve another term to do the PVRC apparel orders. Also, at the W3LPL open house, the circle committee continued discussion of the adjustment of the PVRC circle to shift westward to include an active contest team in Winston Salem NC; this work is near a conclusion. Jack congratulated the W3AO team for a super FD performance and the many others who operated with local clubs which draw potential contesting talent. After moving to a new house in Loudoun last year, Jack is pursuing towers and antennas to build a contesting station.

W2CDO, Peter was disappointed in 40M DX activity and lack of openings on 10M with weak 15M openings during the IARU contest. He did better this year, attributed to strong 20M openings and up the learning curve using contest software. Peter is interested in improving his antennas for next years contest. After some discussion it was recommended he work on improving his 20M rather than 80M antennas.

NE3H, Joe worked the VHF contest. He is 25 percent through the ARRL antenna modeling course. The course is well structured, providing resources through forums, reflector and mentor for questions. He noted the importance of taper segment structure on the performance of the models. The course emphasizes the proper use of antenna modeling software. This topic generated a good discussion among the group.

N3VOP, Mike thought the AREC course was free if passed. He put together a Cushcraft 6M beam. Mike worked 12 new grids and some new countries on 6M using a vertical antenna. At the Carroll County ARC Field Day contest site, barbecue ribs and chicken were served. This feast lowered the Q rate when served. AMSAT set up a FD AO40 satellite station and managed 40 Q's. The WX3B web site has pictures of the field day operation. Last years field day category was 7A and this year went to 11A at Freedom Park.

WD3A, Tom worked FD at W3AO on 6M. He helped take down the antennas which took about 3-1/2 hours.

N3HBX, John did not work field day because W3MC, his tower person, was ready for antenna relocation work. John used YT terrain modeling software but found HFTA (provided in the forthcoming antenna handbook) can handle out to 10K feet of complex terrain. John worked the IARU contest accumulating 1100 Q's and about 1/2 million points. He reported conditions were not great during this contest.

W8ZA, Bob worked field day from home. He also was in the VHF contest. Bob found west coast stations coming thru on 6M late at night (9-10PM) and a 2M opening to the mid west. 1-1/2 pages of Q's made it into the log.

W3LL, Bud attended the W3LPL open house and PVRC meeting. He received ARRL certificate for 2002 International DX Contest, 1st place, single op, LP, phone, MDC section. Also an ARRL certificate for 2002 November Sweepstakes, 1st place, single op, LP, phone, MDC section. He participated in field day, class 1E, from home and in the IARU contest last weekend.

Next meeting - The August 19th meeting will be at the City Buffet, 1306 W. Patrick Street, Frederick, MD. (301) 360-9666. The City Buffet is in a small shopping center.

From W. Patrick Street, turn up McCain Dr. (the Mountain View Diner is on the corner), then turn right into the shopping center, then turn left and search for a parking place. The City Buffet is tucked back in the left corner of the shopping center behind Mountain View Diner; you can't see it from the street.

The NW Region meetings are on the third Tuesday of the month. Most arrive about 6 PM for dinner and informal discussions; the meeting begins at 7:15 PM.

In his own words ... VHF Contesting Columnist Chuck Watts, W4XP



PVRC member since October 1993 –

In the summer of 1958, my 11th year of life, a school friend's older brother received his Amateur Radio license. He was a General Class by the time I knew anything about Amateur Radio. That same summer my friend's brother introduced me to Jim Ford, WA6AXA (now N6JF) who lived closer to me than my friend. Jim, who is four-years my senior, took me in tow and became my Mentor. I received my Novice license in June 1959 with the callsign WV6GVC.

Operating CW was fun, but one day while visiting Jim, he had a Gonset Communicator he'd barrowed from a friend to get on the 2-meter band. In those days, Novices had phone privileges on the 2-meter band. That was my introduction to VHF. Once I got on the 2-meter band, I lost any interest in HF and began building a respectable VHF station (National NC-240D with matching pair of Ameco 50- and 144-MHz Nuvistor-tube-type receiving converters and an Ameco TX-62 crystal controlled transmitter).

In 1960, (WA6GVC -- Technician Class by then, after all,

that's all that was needed to operate on 50 MHz and above!) I discovered contesting, in the form of Field Day [I know, it's not a contest]. I was the 2-meter band operator [no one bothered with 50 MHz back then] at the Newport [Beach] Amateur Radio Society, W6MRO operation (that's still the call used by the Society, but Braz, who began his Amateur career as 6MRO, was alive and very "radioactive", what a great man, with really [almost] unbelievable Amateur Radio "war" stories!). By January 1971 I had held every class of license then available: Novice, Technician, Conditional [remember that one?], General, Advanced, and finally Amateur Extra. Between 1970 and 1977 I had a "professional" Amateur Radio career with three stints on the ARRL staff, Lab Technician, Station Attendant at W1AW, and two years on the Technical Department Staff as an Assistant Technical Editor.

Since 1998 my wife Tami and I have lived on Bull Run Mountain, which is located about eight air miles northwest of Manassas, in the Gainesville District of Prince William County Virginia. My primary contesting interest is the Delmarva VHF and Microwave Society's Grid Pirates Contest Group. (Usually 80 to 100% of the operators at K8GP also are members of the PVRC, so we always send our score in as PVRC [1/3rd, to over 2/3rds of the September- and, sometimes, January-score totals come from K8GP operations]. You can check out the K8GP operation at <http://k8gp.net> or come up to Spruce Knob West

WAE Rules Summary, from the ARRL Contest Rate Sheet

"Worked All Europe DX Contest - CW - sponsored by the Deutscher ARC, 0000Z Aug 9-2400Z Aug 10, (phone is Sep 13-14; RTTY is Nov 8-9).

Frequencies 80-10 meters according to Region I band plan. Categories SOHP, SOLP, MS, SWL. Packet or spotting nets allowed (SO stations not using spotting assistance will be noted). SO operate 36 hrs max., up to three off periods of 1 hour min. Non-EU work EU only except RTTY, where everyone works everyone except own country.

Exchange RS(T) and serial number. Score 1 pt/QSO and 1 pt/QTC. Final score is QSOs + QTCs x weighted multipliers.

Multipliers non-EU use WAE countries, EU use DXCC entities plus call districts in W, VE, VK, ZL, ZS, JA, PY and RA8/9/0. (RTTY use WAE + DXCC.)

Mults on 80 m count x4, on 40 m x3, otherwise x2. A QTC is a report sent from a non-EU station back to an EU station of QSOs that took place earlier in the contest (RTTY QTC can be exchanged between any continents). A QTC contains the time, call sign, and QSO number of

the station being reported (e.g. 1307/DL1AA/346). A QSO may only be reported once and not back to the originating station. A maximum of 10 QTCs can be sent to a single station. The same station can be worked several times to complete this quota, but only the original QSO has QSO point value. Keep a list of QTCs sent. For example, QTC 3/7 would indicate that this is the third series of QTCs sent, and seven QSOs are reported. For more information - <http://www.waedc.de>.

Logs due by Sep 15 (CW), Oct 15 (Phone) or Dec 15 (RTTY) to waedc@darcd.de or to WAEDC Contest Manager, Bernhard Buettner DL6RAI, Schmidweg 17, 85609 Dornach, Germany."

This Just In....

From page 102, August 2003 CQ Magazine

"Over the last several years the CQ WW Contest Committee has developed software that allows the detection of packet use. Thanks to the cooperation of all the major packet services, we were able to create a massive file of all packet call-outs during the CQ WW SSB test. This year we checked all 4100 SSB logs against this packet file. The results are very heartening. Only 12 logs were reclassified. Since the CQ WW is the first contest to analyze logs in this manner, we have had to develop some ways to deal with packet misuse. The first step is a letter of inquiry asking the entrant if he used packet and forgot to indicate the proper category in the summary information.

This usually solves the problem, being that most misclassifications are human errors of omission. After a second year of not claiming the use of packet, a warning letter is sent. Thereafter, the entrant's log will become a checklog. First and second violations lead to proper classification as Assisted. Third violations cause the logs to become checklogs. It is easy to avoid any problems Claim the category you actually entered. It is that simple."

The PVRC Store

The **PVRC Store** is reopened for business with a selection of apparel and accessories for **PVRC Members**, which we hope will please and will enable us to "show the colors" of our fine organization and proudly display the logo of an esteemed and accomplished group of amateur radio contesters. We hope you will consider placing an order.

We have, with no small effort, been able to hold the line on prices from our last order in early 2000. In addition to the basics being offered, we are working on a long sleeve, light blue or white dress shirt with an embroidered PVRC logo for about \$30.00, in sizes up to 4X. Please let me know if you are interested and I will include it in next month's advertisement.

Item No. 1 - PVRC Tee shirt, white color, with a pocket and a large, 3 color, silk-screened PVRC logo on the back and a small, 3 color, silk-screened PVRC logo over the left breast.

Circle Size M, L, XL _____ @ \$14 each; XXL _____ @ \$16 each = \$ _____

Item No. 2 - PVRC Golf shirt, white color, with a small, 3 color, silk-screened PVRC logo on the right breast and a pocket on the left. Call sign and name (in blue) to be embroidered over the pocket.

Circle size M, L, XL _____ @ \$26 each; XXL _____ @ \$28 each = \$ _____
Name and Call sign (Print clearly) _____

Item No. 3 - PVRC cap, blue with silk-screened PVRC logo. One size fits all.

Quantity _____ @ \$8 each = \$ _____

Item No. 4 - PVRC Coffee Mug , white, with three color PVRC logo and call sign (set in red Helvetica , bold type) on both sides of the mug. The mug is microwave and dishwasher safe. (We must order a minimum of 24 mugs, so we don't order them very often. Don't miss this chance!) Can be ordered without callsign.

W/callsign _____ @ \$13 each; w/o call sign _____ @ \$10 \$ _____
Call sign (Print clearly) _____

Item No. 5 - PVRC Lapel Pin. One inch diameter with PVRC logo in three colors. Silver back and pin clasp.

Quantity _____ @ \$5.00 each = \$ _____

Delivery/ Shipping and Handling

All items can be picked up at my home or, with advance notice, at a regular club meeting, at no cost. If you want items shipped to you, the charges for UPS delivery are as follows:

Mugs: \$4 each x _____ quantity = \$ _____

Lapel Pins: \$ 2.50 each x _____ quantity = \$ _____

All Other Items: \$5 for one item, \$8 for two or more items, including pins = \$ _____

TOTAL FOR ITEMS ORDERED \$ _____

TOTAL SHIPPING AND HANDLING \$ _____

GRAND TOTAL (Check for this amount enclosed) \$ _____

Make checks payable to Brian E. Bayus, and mail along with your order form to:

Brian E. Bayus, N1KC, 2521 Heathcliff Lane, Reston, Virginia 20191-4225

Any questions: call me at 703-264-1180, or send an email to: n1kc@arrl.net.

I PLAN TO CLOSE ORDERS IN MID OCTOBER, SO DON'T DELAY. (Please print)

NAME: _____ CALL: _____

ADDRESS: _____

CITY _____ STATE _____ ZIP _____

PVRC REFERENCE PAGE Please send corrections to the editor. August 2003

PVRC OFFICERS:

President	K4VV	Jack Hammett	540-882-3188	k4vv@aol.com
VP-North	N3OC	Brian McGinness	301-924-1712	n3oc@wirelessinc.com
VP-South	K2AV	Guy Olinger	919-362-9461	k2av@contesting.com
Secretary	W2GG	Bob Dannals	410-472-2004	w2gg@arrl.net
Treasurer	WR3L	Dave Baugher	410-DX1-WR3L	wr3l@arrl.net
Trustees:	K3MM	KE3Q N3RR N4ZR W4MYA W4ZYT N4AF	K4IQ ND3A W3PP N1KC	

PVRC Charter Members (*=SK)

W3GRF*, W4AAV*, W4KFC*, N0FFZ*, W4LUE*, W7YS, VP2VI/W0DX*, W3IKN, W4KFT

PVDXSN Packetcluster

W3LPL	Glenwood MD	145.590
		441.250
W3IP	Crownsville MD	145.570
WR3L	Baltimore MD	145.610
		440.950
N3RR	Rockville MD	145.510
		441.325
K3SKE	Frederick MD	144.930
		441.125
W3YOZ	West River MD	144.910
W3TOM	Acokeek MD	145.770
N1WR	Lusby MD	145.690
N4OHE	Mt. Weather VA	145.710
		446.025
NE3H*	Harrisburg PA	144.970
W3BD	S. Mountain PA	145.630
N4SR*	Woodbridge VA	145.630
W4XP	Bull Run Mtn. VA	144.990
K4JA*	Callao VA	145.090

The system is sponsored by the Potomac Valley DX Spotting network except those marked with an asterisk are independently funded by each SYSOP.

PVRC Web Sites

PVRC Web Site by Howie Hoyt N4AF
<http://www.pvrc.org>
 PVRC/NC Web Site by Jim Price WW4M
<http://pvrcnc.org>
 PVRC Reflector administered by N4AF
<http://mailman.qth.net/listinfo/pvrc>
 postings to pvrc@mailman.qth.net
 (Members only, if your callsign is not part of your email address, send an email to n4af@qsl.net to subscribe.)

PVRC Dues

PVRC has no annual dues. In lieu of dues, each member is expected to submit two contest scores for PVRC annually. Donations are gratefully accepted by the Treasurer, Dave Baugher WR3L, 615 Rockaway Beach Ave., Baltimore MD 21221. Please make your checks payable to PVRC.

Newsletter Editor

Position Vacant! Contact K4VV.

Autocall Column Editor

Dick Wilder, K3DI. Contesting articles for our autocall column are requested.

PVRC MEETINGS

Central Region

Regional Coordinator Brian McGinness N3OC
 301-924-1712 n3oc@wirelessinc.com
 Meetings are always the second Monday of each month, except June, July and August. Meetings alternate between MD and VA locations. January, March, May, September and November are in Temple Hills, MD at the Church of the Nativity. February, April, October and December are at the Patrick Henry Library on Route 123 (Main St.) in Vienna, VA.

Pre-meeting dinner get-togethers are held at Topolino's Italian restaurant on Old Branch Ave. before the MD meetings, and at the Outback Steakhouse on Route 123 before the VA meetings, usually around 6pm. Talk in is usually available on the 147.00 repeater.

Northwest Region

Regional Coordinator Bud Governale W3LL
 410-666-9189 w3ll@arrl.net
 Meets monthly on the third Tuesday. Dinner around 6pm, meeting at 7pm at the City Buffet, 1306 W. Partick St., Frederick MD, located to the rear of the shopping center behind Mountain View Diner.

North Carolina Region

Regional Coordinator Jim Price WW4M
 919-362-4635 (h) or 919-460-2991 (w)
 See <http://www.pvrcnc.org> for more info.
 PVRC/NC meets the first Tuesday of the month, Sept. through March, 6pm, at Ryan's Family Steakhouse at the Crossroads in Cary, NC. The April meeting is at the Raliegh hamfest. Summer meetings will continue in 2003.

Tidewater Colony

Meeting concurrent with the Virginia DX Century Club at Ryan's Steakhouse, on Battlefield Blvd. In Chesapeake, VA. Take the Battlefield Blvd South (VA 168) exit off I-64. Meetings are the third Tuesday of the month around 6:15-6:30pm. Contact W4ZYT 757-457-5181 or email w4zyt@exis.net for additional info.

Northeast Region

Regional Coordinator Dave Baugher WR3L
 (see Treasurer info at top of page)

Eastern Shore DELMARVA Region

Dallas Carter W3PP 302-875-0550
Ludal@dmv.com

Southwest VA Region

Regional coordinator Mike Barts N4GU
 540-641-1626 n4gu@vt.edu
 Meets Sept-June. Meetings are at the Roanoker Restaurant in Roanoke, VA dates vary, contact N4GU for latest info.

BWI Region

Weekly breakfast Weds. 7am at Basil's Deli Port (410-850-4333) on Elkridge Landing Rd 1/4 mile south of Wintergreen Rd. Contact Ike Lawton W3IKE 410-263-2830 or Howard Leake W6AXX 410-465-7008 w6axx1@starpower.net

Over-the-hill Lunch

Meetings are held monthly at three locations: Falls Church VA at the Parkview Marriott, Oxon Hill MD, and Beltsville MD. Meeting schedules are available by telephone or email. All are welcome. For info contact Ben Shaver AA4XU 703-534-4740 or Bill Leavitt W3AZ 301-292-5797.

Pennsylvania Region

Steve Gutshall K3TZV 717-763-0462
k3tzv@paonline.com

Rappahannock Region

Steve Bookout NR4M nj4f@erols.com or Larry Schimelpfenig K7SV
K7sv@va.prestige.net

Woodbridge Region

Jack O'Mara W4NF 703-791-3302 (h) or 703-739-7636 w4nf@comcast.net and Cliff Deel W4CE 703-491-0841
W4ce@aol.com

Central Virginia Contest Club

CVCC Pres. Roy Davis WK4Y 804-741-9315 rdd@j2020.net Monthly meetings 2nd Tuesday each month 6pm at the River City Diner on Huguenot Rd (dinner) and 7:30pm at the First Mennonite Church on Staples Mill Rd, Richmond VA (meeting). Talk-in on 145.43, PVRC regional coordinator W4ML.

Southern MD Region

Barry Shapiro WR3Z 301-862-2466
shapirobj@navair.navy.mil meets at N1WR's home.

Shenandoah Region

Bill Hinkle KV3R 304-567-3138
kb3aug@juno.com

Carroll County Region

Jim Nitzberg WX3B 410-374-9233
Nitz@selectsa.com

Laurel Region

Pud Reaver W3YD@arrl.net
Laurel Region meets concurrently with
the Laurel Amater Radio club at the first
LARC meeting of each quarter.

Summer Meetings

June 21 W3LPL open house & PVRC/
NCDXA meetings, 12 noon. Saturday
before field day.

July 26 K4JA open house 12 noon.
Callao, VA

August 16 W3YOZ fowlfest & PVRC/
NCDXA meetings

September WR3L open house Baltimore
MD

December 8 PVRC annual holiday dinner,
Olive Garden, Tyson's Corner VA 6pm.

5 Million Club Competition Events

January ARRL VHF Sweepstakes
January CQ 160m CW
February ARRL DX CW
March ARRL DX SSB
March CQWW WPX SSB
May CQWW WPX CW
August 9-10 DARC WAEDC CW
September 13-14 DARC WAEDC SSB
September 13-15 ARRL VHF QSO Party
October 25-26CQWW SSB
Nov 2-3ARRL Sweepstakes CW
Nov 15-16 ARRL Sweepstakes SSB
November 29-30 CQWW CW
December 5-7 ARRL 160m
December 13-14 ARRL 10m Contest

Fowlfest Directions

It's Fowlfest time! The joint PVRC and
NCDXA meeting will be hosted again by
Marty, W3YOZ, at his "park" near Annapo-
lis. Festivities start at noon on Saturday, Au-
gust 16, with BBQ chicken and drinks. Some
folks may bring the optional salad, dessert or
other munchies. Everybody should bring a
big appetite!

Directions:

From Virginia: I-95/I-495 to MD Route 4
(PA Ave. South/East); turn off at MD Route
258 (Bristol/Deale); take 258 to MD Route
256; turn left and go to Rodgers Road; turn
right, go to gravel road on left, turn left; go to
1062 sign turn right and go to picnic grounds
at the water's edge.

From U.S. DC Beltway/50: Take Beltway to
Route 50; take Route 50 east. After crossing
Patuxent River the next turnoff is MD Route
424 (Davidsonville Road); take 424 towards
Davidsonville, cross over route 214 (Central
Ave), and continue until it dead ends at MD
Route 2. Turn right, go 200 feet and turn left
on Mill Swamp Road. Continue to MD Route
468 (Muddy Creek Road); turn right on route
468 and go 6 miles to the traffic light at MD
Route 256. Turn right on MD Route 256 and
continue to Rodgers Road (first left after the
Churchton Post Office); turn left on Rodgers
Road, go to gravel road on left; turn left, go
to 1062 sign, turn right and go to water's
edge.

From I-97: Take I-97 South to MD Route 665
(Allen Blvd.); take 665 to MD Route 2; take
Route 2 south to Mill Swamp Road (first left
after Route 424 on right); take Mill Swamp
Road to MD Route 468 and follow the direc-
tions above.



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Manufacturers' Day, August 23rd at HRO Salem



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MANUFACTURER'S DAY - 8/23!

Special one day only pricing at ALL 12 HRO STORES

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- See the latest gear -

- Refreshments -

10:00 - 5:30 pm

(no purchase necessary)

SPECIAL SAVINGS AT ALL 12 HRO LOCATIONS!



IC-706MKIIG

- Proven Performance
- 160-10M/6M/2M/70CM
- All mode w/DSP
- HF/6M @ 100W, 2M @ 50W
- 440 MHz @ 20W
- CTCSS encode/decode w/tone scan
- Auto repeater • 107 alphanumeric memories

FREE SEPARATION KIT RMK-706
LOWEST PRICE EVER!



IC-756PROII All Mode Transceiver

- 160-6M @ 100W
- 32 bit IF DSP
- Enhanced 5 inch color TFT w/spectrum scope
- Selectable IF filter shapes for SSB & CW
- Enhanced Rx performance
- SSB/CW Synchronous tuning
- Multiple DSP controlled AGC loops
- Advanced CW functions
- 101 alphanumeric memories

FREE POWER SUPPLY PS-125



IC-746PRO All Mode 160M-2M

- 10-2M @ 100W
- 32 bit IF-DSP+ 24 bit AD/DA converter
- Selectable IF filter shapes for SSB & CW
- 102 alphanumeric memories
- Enhanced Rx performance

FREE POWER SUPPLY PS-125



IC-718 HF Transceiver

- 160-10M @ 100W
- 12V Operation
- Simple to Use
- CW Keyer Built-in
- One Touch Band Switching
- Direct frequency input
- VOX Built-in
- 101 alphanumeric memories

FREE DSP UT-106



IC-17H 6W, Dual Band Transceiver

- 2M/70CM
- 70 alphanumeric memories
- 6W output
- CTCSS encode/decode w/tone scan
- Auto repeater
- Easy operation!
- Mil spec 810, C/D/E**

IC-T90A Triple Band Transceiver

- 6M/2M/70CM @ 5W
- Wide band receiver 495kHz - 999.999MHz**
- 500 alphanumeric memories
- Dynamic memory scan
- Backlit keypad & display
- CTCSS/DTCS encode/decode w/tone scan
- Weather Alert

NEW!



IC-2100H 25N 2M Mobile Transceiver

- Cool dual display
- 50 watts
- CTCSS encode/decode w/tone scan
- Backlit remote control mic
- Mil spec 810, C/D/E**
- Auto repeater
- 113 alphanumeric memories

LOW PRICE



IC-W32A Dual Band Transceiver

- 2M, & 70CM @ 5W
- V/V, U/U, V/U
- Independent controls for each band
- 200 alphanumeric memories
- Auto repeater
- CTCSS encode/decode w/tone scan
- IRLP compatible



IC-V8000 2M Mobile Transceiver

- 75 watts
- ICOM DMS scanning
- CTCSS/DCS encode/decode w/tone scan
- Weather alert
- Weather channel scan
- 200 alphanumeric memories
- Backlit remote control mic

LOW PRICE!



IC-2720H Dual Band Mobile

- 2M/70CM
- V/U/U/V
- Wide band RX inc. air & weather bands
- Dynamic Memory Scan (DMS)
- Remote Mounting Kit included
- CTCSS/DTCS encode/decode w/tone scan
- Independent controls for each band
- DTMF Encode
- 212 memory channels

NOW AVAILABLE!

IC-208H Dual Band Mobile

- 55 watts VHF (2M), 50 watts UHF (70CM)
- Wide Band RX**
- 500 alphanumeric memories
- CTCSS/DTCS encode/decode w/tone scan
- Detachable remote head
- DMS w/linked banks

SOON!

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Toll free, incl. Hawaii, Alaska, Canada, call routing to nearest store. All HRO 800-lines can assist you, if the first line you call is busy, you may call another.

West.....800-854-6046
Mountain.....800-444-9476
Southeast.....800-444-7927
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Look for the HRO Home Page on the World Wide Web
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AZ, CA, CO, GA, VA residents add sales tax. Prices, specifications, descriptions, subject to change without notice.

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(Near Disneyland)
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(714) 533-7373
(800) 854-6046
Janet, KL7MF, Mgr.
anahem@hamradio.com

BURBANK, CA

2416 W. Victory Bl., 91506
(818) 842-1786
(800) 854-6046
Eric, KA6IHT, Mgr.
Victory Blvd. at Buena Vista
1 mi. west I-5
burbank@hamradio.com

OAKLAND, CA

2210 Livingston St., 94606
(510) 534-5757
(800) 854-6046
Mark, W7YN, Mgr.
I-880 at 23rd Ave. ramp
oakland@hamradio.com

SAN DIEGO, CA

5375 Kearny Villa Rd., 92123
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(800) 854-6046
Tom, KM6K, Mgr.
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sandiego@hamradio.com

SUNNYVALE, CA

510 Lawrence Exp. #102
94085
(408) 736-9496
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Howard, K6PWH, Mgr.
So. from Hwy. 101
sunnyvale@hamradio.com

NEW CASTLE, DE

(Near Philadelphia)
1509 N. Dupont Hwy., 19720
(302) 322-7092
(800) 644-4476
Rick, K3TL, Mgr.
RT.13 1/4 mi., So. I-295
newcastle@hamradio.com

PORTLAND, OR

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97223
(503) 598-0555
(800) 854-6046
Leon, N7IXX, Mgr.
Tigard-99W exit from Hwy. 5 & 217
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DENVER, CO

8400 E. Iliff Ave. #9, 80231
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(800) 444-9476
Joe, KD9GA, Mgr.
John, N5EHP, Mgr.
denver@hamradio.com

PHOENIX, AZ

1939 W. Dunlap Ave., 85021
(602) 242-3515
(800) 444-9476
Gary, N7GJ, Mgr.
1 mi. east of I-17
phoenix@hamradio.com

ATLANTA, GA

6071 Buford Hwy., 30340
(770) 263-0700
(800) 444-7927
Mark, KJ4VO, Mgr.
Doraville, 1 mi. no. of I-285
atlanta@hamradio.com

WOODBRIIDGE, VA

(Near Washington D.C.)
14803 Build America Dr. 22191
(703) 643-1063
(800) 444-4799
Steve, N4SR, Mgr.
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woodbridge@hamradio.com

SALEM, NH

(Near Boston)
224 N. Broadway, 03079
(603) 898-3750
(800) 444-0047
Chuck, N1UC, Mgr.
sales@hamradio.com
Exit 1, I-93,
28 mi. No. of Boston
saalem@hamradio.com