The Vox

W3OI
Lehigh Valley Amateur Radio Club

WFMZ-TV Antenna Towers on South Mountain, Summit Lawn

Location of Club's LVARC Repeaters
147.135/147.735 (DCS 315 Normal)
Yaesu System Fusion

Inside this issue

Officers

President: John Bartos, AB3LZ

Vice President: Chuck Ballard, WB6CDY

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Gary Decker, W3GRD

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Communications

VOX Editor: John Hilderbrand, WB3DX

Webmaster: John Borchers, W3AMD

Webmaster: Igor Kasriel, KC3ASC

DV Hotspots Anyone? (Part 3)

De WA3PNY: We have come to the last of our 3 part series on DV Access Points and DV Hotspots with this month's installment. We have looked at DVAPs which are based on the DV4Mini dongle, and last month, DVMega based DVAPs. We also looked at a DV Hotspot based on Yaesu's HRI-200 for Wires-X. This month I fear that my article may seem quite dis-jointed, as I attempt to clean up some areas not yet covered. I would also like to look at another DV hotspot which is being developed for all the DV modes, and a discussion of the importance of CCS7 ID's for the future of digital voice modes. Finally, I would like to share some closing thoughts on this mode of communications for Ham Radio.

Figure 1
DE: EBAY

In our September installment, we looked at a Wires-X hotspot based on Yaesu's interface box HRI-200 which has a cost of about $124 from Hamradio.com. Unfortunately, you normally need to add a Fusion Node Radio to make this work, so the result is a node that costs $430 or more depending on what radio is used. What you might not know is that there is a much cheaper way to get on the air for Wires-X if you don't need to have a RF access. It is possible to interface a microphone/preamp and an amplified speaker directly to the HRI-200 in a way that looks like an analog radio. You can build your own, or buy one from EBAY (Figure 1) for about $49 (VH-MD6 from Japan). There was also a NJ station who was promoting a project board which he was supplying to Hams.   I have not tried this but I have heard several of these used on the air, and they sound great.   Additionally, there also has been a permanent link established between FS002/90 reflector and the America Link Room on Wires-X, so you can get to Wires-X if you have a DV4Mini or any other Fusion DV Access Point. So, there are, indeed, more than one way to get onto Wires-X.

"What you might not know is that there is a much cheaper way to get on the air for Wires-X if you don't need to have a RF access. It is possible to interface a microphone/preamp and an amplified speaker directly to the HRI-200 in a way that looks like an analog radio. You can build your own, or buy one from EBAY (Figure 1) for about $49 (VH-MD6 from Japan)."

Figure 2
DE: F0DEI

Secondly, I would like to introduce a home-brew DV-Hotspot/Repeater based on a MMDVM board (Figure 2). This is available from Bruce Given VE2GZI (bruce.given@gmail.com); assembled and tested for about $65 (mmdvm.com). You will need to add a repeater, or two radios and duplexers for a duplex hotspot which can accommodate DSTAR, DMR, and Fusion or it can be a simplex hotspot with one radio which can accommodate both DSTAR and Fusion. The MMDVM software is open source and is actively being developed for DMR, DSTAR, Fusion, and P25.   I'm on the waiting list to get one of these boards, but I have not been able to play with it yet.   Figure 2 is from F0DEI's setup.

Continued on page 3

DV Hotspots Anyone? (Part 3)

Continued from page 2

There are many new products which are being introduced or are in development, the future is very promising for digital voice. One of these is from NW Digital Radio (http://nwdigitalradio.com), which allows a Yaesu DR-1X Fusion repeater to operate in a tri-mode fashion; Fusion Digital, Analog FM, and D-STAR. Again, I have no experience with this device (figure 3), but I have heard them on the air. See http://k7ve.org/blog/2015/09/yaesu-fusion-repeater-on-d-star/   for user specific information.

Perhaps we are seeing the initial development of multi mode operation platforms which will allow us to communicate together without any regard to the mode that we are using.
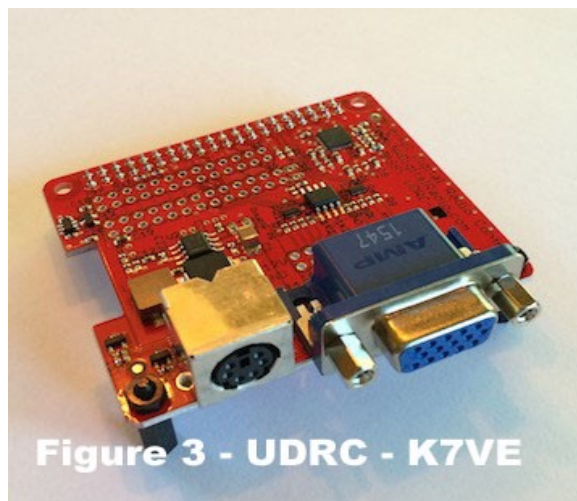
Figure 3 - UDRC - K7VE

"One of the things I have heard on the air is that Fusion is much easier to use since you don't have to register your call. Indeed, that is correct. Each radio requires you to enter a call, and the radio may check the overall structure but no one actually validates the call. If you buy a HRI-200, you must register your call with the Japanese servers to get your node ID,..."

Which brings me to our last topic of CSS7 ID's. You might remember that the DV4Mini requires a CCS7 ID number to operate.   CCS is an abbreviation for "Callsign Communication System" (or sometimes Call Connection Service). The CSS7 ID was developed principally for use with DMR radios because DMR, not originally developed as a Ham Radio mode, doesn't really know what to do with an alphanumeric callsign. So, the DMR Marc people constructed servers which bridge between the CCS7 number, and the Ham Radio callsign. Applying for a CCS7 number at least validates your call as valid to the system for DMR and any other mode that uses CCS7. The CCS7 ID does not meet the FCC requirements for station identification (as far as I can discern).

When DSTAR was introduced, it was (and still is) based on a G2 level addressing scheme which uses the actual Callsign of the station. When you register your callsign in the DSTAR Gateway, that local repeater owner is vouching for you – theoretically looking up your call to make sure that the information submitted is correct. The DSTAR network will not route you unless you are registered. CCS or DCS addressing was later introduced to allow DTMF station addressing and was based on a similar system which was called CCS4. By 2014, it became evident that the 4 digit system of CCS4 would not allow enough addresses to meet the demand of DSTAR users. So, DSTAR is currently in the process of changing over from CCS4 to CCS7 ID's.   DSTAR requires a valid amateur call and allows the use of CCS. If you want to use DCS reflectors, you will soon need to be registered for a CCS7 ID.

That brings us to Fusion Radios. One of the things I have heard on the air is that Fusion is much easier to use since you don't have to register your call. Indeed, that is correct. Each radio requires you to enter a call, and the radio may check the overall structure but no one actually validates the call. If you buy a HRI-200, you must register your call with the Japanese servers to get your node ID, which is a numeric ID which is unique to Yaesu and not compatible with CCS or DCS – Good Grief! I've seen some node come over Wires-X as locations instead of calls?

DV Hotspots Anyone? (Part 3)

Continued from page 3

There is hope, however, for interoperability with the use of CCS7 ID's. If there is a valid call entered into the Yaesu radio, it can be cross checked with CCS7, and could be routed to either DMR or DSTAR (I would assume that the DSTAR network would still require a registration of the callsign).   That is what happens with the RF Shark Open Spot when it converts DMR to Fusion and Fusion to DMR. The CCS7 ID and callsign are both known to the OpenSpot software but that could be queried from the CCS7 server in the future.

DSTAR cannot currently be converted to DMR or Fusion because of differences in the vocoder, but perhaps in the future this could be done using the computing power of a Server Class reflector. I have heard rumors that this is in development in a global development effort which is aimed at producing a reflector which would allow any amateur to link using any of the digital voice modes, and would allow all stations linked to communicate without regard to the mode used to link. CCS7 might be the key that would allow for this to work since it has both the 7 digit ID (DMR, P25) and also the alphanumeric callsign information (DSTAR, Fusion). I think that you might agree that many of the pieces of this are currently available at least in a primitive state. Change is accelerating and it is a daunting effort just to keep up to date.

All this is to say that CCS7 is currently required for DMR (P25) and seems to be becoming more important for Fusion mode as these become more interchangeable. It is can also be used with DSTAR for routing. Perhaps you should get a CCS7 ID if you are interested in Digital Voice Communications. Again, you can get a CCS7 ID at http://www.dmr-marc.net/cgi-bin/trbo-database/userreg.cgi .

Conclusion:
I have had a lot of fun with these three articles, and I hope that you have enjoyed them as well. I am excited to be an amateur at this time, when new DV modes and many new software packages are becoming available. I encourage you to try a digital voice mode if you are not already using them. Don't hesitate to ask if you have any questions. 73's for now De WA3PNY -.-

Silent Key: Bruce Bobo Jr.

53 years of Whitehall, passed away on October 12, 2016 at his home surrounded by his family. He was the husband of Donna (Kern) Bobo and recently celebrated 21 years of marriage. Born in Tennessee, he was the son of Bruce and Gloria Bobo of Allentown and Barbara (Curry) and late Larry Greene of Tampa, Fl. Bruce worked for Lehigh Valley Hospital as a Subject Matter Expert for the last 14 years and was instrumental with the advanced ICU. He was involved in EMS, amateur radio clubs, LVHN Emergency Management, and was the Lehigh County ARES Emergency Coordinator. He provided emergency communications at Hurricane Andrew, Hurricane Sandy, 911 in NY and many local emergencies and community organizations. He was a U.S Army Disabled Veteran. Survivors: along with his wife Donna and parents; son Gregory and daughter Emily Nonnemaker both of Whitehall, Pennsylvania. Services: 10:00 AM on Thursday October 27, 2016 in St. John's UCC Fullerton, 575 Grape Street Whitehall, PA 18052, followed by his Military burial at Indiantown Gap National Cemetery at 12:30 pm. Visitations with his family will be on Wednesday evening October 26th from 5:00 to 8:00 PM and from 8:00 to 9:45 AM on Thursday morning both in the Church Parlor. Contributions: are suggested to the Lehigh Valley Amateur Radio Club PO Box 3134 Easton, Pa. 18043 Gilbert Funeral Home of Whitehall is honored to handle his arrangements

Published in Morning Call on Oct. 15, 2016

Pennsylvania RACES Members Activate for Nursing Home Fire

Hams responded December 15, 2001, after fire broke out at Cedarbrook County Home in South Whitehall Township and soon was upgraded to a four-alarm fire.

Emergency Management Agency Coordinator James Kelly, KA3UQP, began opening temporary shelters in anticipation of the evacuation of the 515 residents. He notified the South Whitehall EMA team that included Jeff Kelly, N3MFT, who is the Township EMA Communications Officer, Lehigh County Emergency Coordinator and RACES Radio Officer. It was agreed that RACES would be activated to staff the shelters and provide additional support.

A net was established, and Deputy RACES Officer Bruce Bobo, KB3FIH, directed operations from the county's mobile command center at the fire scene. RACES members were deployed to the scene as well as at shelter locations and the local trauma center. Over the next 24 hours, more than two dozen RACES members helped to provide communications until temporary shelters had shut down and residents transported to appropriate care.

On December 17, Lehigh County EMA contacted Kelly for RACES to assist in coordinating the return of patients to the facility, which received smoke and water damage. Bobo said RACES was called back in to help because it was determined that the amateur system had the best communications coverage over the four-county area where patients had been sheltered temporarily. More than 20 RACES members from Lehigh and Northampton counties provided support for the safe return of all 515 residents. Authorities expressed appreciation to the RACES teams and for use of the W3OI 146.94, W3OK 146.70 and N3MFT448.775 MHz repeaters.--Jeff Kelly, N3MFT

RACES and ARES Information

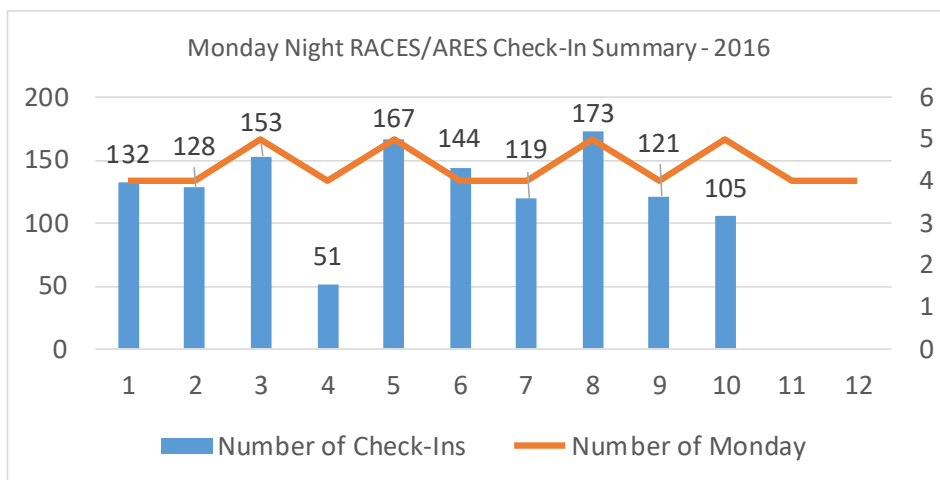| LVARC ARES Events—2016	
Event	**Date**

"I am VERY proud of the LVARC and its ARES program. That is proved as the LVARC had enough volunteers to operate TWO events at the same time, one 5K and one half marathon. The LVARC and its members are to be commended!

These end the scheduled events for another very successful 2016 LVARC ARES program. Counting these two events, the LVARC provided communications support for SIX community events in 2016. Services for these events would not be possible if not for the LVARC members." Mark, AK3M

LVARC / RACES / ARES Net

Monday Night Check-In Summary 2016		
Month	**Count**	**Days**
January	132	4
February	128	4
March	153	5
April	51	4
May	167	5
June	144	4
July	119	4
August	173	5
September	121	4
October	105	5
November		4
December		4

Monday Night RACES/ARES Check-In Summary - 2016

132 128 153 51 167 144 119 173 121 105

Number of Check-Ins   Number of Monday

Check-Ins Every Monday Night
LC/LVARC/RACES Net on 146.94 (PL 71.9)
Alternate frequency on 147.735/147.135 (DCS 315)
The Net begins at 7:30 pm local time (ET)

LVARC Repeaters
146.34 / 146.94 (PL 71.9)
147.735/147.135 (DCS - 315)
Club Simplex Frequency - 147.420

LVARC Activities and Events

ARES Report

ARES Report
Mark, AK3M

LVARC Activities and Events - 2016	
Event	**Date**
LVARC Activity Night (7:30 pm - Tri Clover FC)	Tuesday, November 22nd

Hanover Township Fall 5K

Six LVARC members came out to provide communications support for the Hanover Township (Northampton County) Fall 5K. The weather was a sunny 51 degrees as about 80 runners ran the 5K. A directed net was opened at 0850 and the runners left the township community center at 0905. The event finished at 0955 marked by a township truck as the, "sweep vehicle".

The LVARC's 146.94 repeater was used as the primary repeater and was shared with the D&L Rail Trail Half Marathon which was also happening at the same time.

Thanks to those LVARC members who provided the communications for this event. A BIG TNX to Mark (AK3M), Andy (KC3EKA), Jack (KC9DQV), Kenny (KC3BLE), Jim (KC3FBK), and Bob (WB3JSZ) who volunteered their time and communications expertise for this event!

"I am VERY proud of the LVARC and its ARES program. That is proved as the LVARC had enough volunteers to operate TWO events at the same time, one 5K and one half marathon. The LVARC and its members are to be commended!

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LVARC VE Report

LVARC VE Report
Mark, AK3M

Volunteer Examiners

Date: The next VE test session will be on November 18, 2016
Location: Hanover Elementary School at 6:30 pm.
Registration: Contact Mark (AK3M) at AK3M@rcn.com.
Enrollment: One person has scheduled to test for October.

Report:

At the October 21, 2016 test session, four tested and four passed.
VE's in attendance included Mark (AK3M), Walt (KE3SP) and Don (N0VGA).

Congratulations:

Carl van Krieken — Technician (KC3IAS)

Bob Fridell — Technician (KC3IAT)

Dave Ardelean — Technician (KC3IAU)

Thomas Dietrich — Technician (KC3IAV)

LVARC Minutes November 1, 2016

Tri-Clover Fire Company, Orefield, PA

11/1/2016

Opening:

The regular meeting of the Lehigh Valley Amateur Radio Club was called to order at 7:30 on November 1, 2016 by President Bartos.

There were a total of 29 members in attendance, and the club was joined by 2 guests.

Guests: John, K3UBW; Richard, KC3IAT

The following Board Members were present at the meeting: John Bartos, Chuck Ballard, Brian Snyder, Mike Mandell, Paul Ryan, Gary Decker, Rodney Wolfe

Approval of Minutes

The minutes of the previous meeting were unanimously approved as distributed.

Moved: Chuck, WB3CDY

Second: Andy, KC3EKC

Treasurer's Report (Brian-KB3QHA)

The Treasurer's report was read

Motion to approve: Chuck, W3CDY

Second: Rick, KC3EXO

Motion carried

Committee Reports

Repeater:

The 94 repeater timing issues appear to be resolved. There is eventually going to be a new antenna for the Easton voter. The 2 Dstar machines are disconnected and going back to Icom. Since these are terrorism task force repeaters we are waiting for money from either Lehigh County or the Terrorism Task Force.

Program:

Tonight's program is Chris, N3PRV on Service Electric Cable. November hands-on night will be home-brew antennas with Scott, KB3YOT. John, AB3LZ asked for help setting up the Christmas party at the December hands-on night. Elections will be the regular December business meeting.

Volunteer Examiners:

At the October 21, 2016 test session, four tested and four passed. Congratulations to:

Carl van Krieken — KC3IAS

Bob Fridell — KC3IAT

Dave Ardelean — KC3IAU

Thomas Dietrich — KC3IAV

They received their calls on Friday October 28, 2016. VE's in attendance included Mark (AK3M), Walt (KE3SP) and Don (N0VGA).

The next test session is scheduled for November 18, 2016. One has already signed up

ARES:

The Hanover Township Fall 5K will be held on Sunday November 6, 2016. Help is still needed. To volunteer, contact Mark (AK3M) at AK3M@rcn.com.

The D&L Rail Trail Half Marathon will also be held on Sunday November 6. To volunteer for that event, contact Rod (N3XG) at n3xg.radio@gmail.com.

These two events, are the final ARES events scheduled for 2016.

Communications:
The committee plans to look and see what other clubs are doing regarding communications. Chuck, WB3CDY, invited members to suggest additional means of communications.

Club Station:
The vertical antenna was installed a couple weeks ago, and the supports on the long wire were replaced. The vertical still needs some tuning and some additional radials.

Old Business:
John, AB3LZ signed up for ARRL equipment insurance which will become effective Jan 1, 2017. The premium is about 219.00 a year. We will finish nominations for officers near the end of tonight's meeting. We are still looking for nominations for the Pres Schuler award.

New Business:
The constitution and bylaws are due for the specified 5-year review. Chuck, W3CDY, Paul, N0KIA and Robert, AB3RC volunteered to be on the committee.

Good of the Order:
Bruce, KB3FIH, passed away during the past month. The family requested donations to the club in lieu of flowers.
Carl, K3ATX is in Good Shepard rehab now.
Andy, KC3EKA gave a report on recent HF experience including the CQ DX contest.

New Member Applicants:
Robert Fridell, Jr KC3IAT
John Schneck, K3UBW
Richard Hrkach, KA3QIK
Moved to accept Paul, N0KIA
Second: Chuck, W3CDY
       Carried

Club Election:

Rod, N3XG moved we re-open nominations.
Don, NOVGA
President-no additional nominations for President
Vice President-no additional nominations for Vice President
Treasurer- no additional nominations for Treasurer
Secretary- no additional nominations for Secretary
Board of Governors- no additional nominations for Board of Governors
Summary of Active Nominations for BOG: Mark, AK3M, Rodney N3XG, Gary W3GRD, Paul N0KIA, Phil KB3HMK, Jim KC3AFU, Dave KC3BFO, and Rick KC3EXO
Nominations moved closed by Chuck, W3CDY
Second, Matthew, KB3UZE
Carried.
Rod, N3XG moved all unopposed officers declared elected and the secretary prepare ballots.
Second, Chuck, W3CDY
Carried

Adjournment:

Meeting was adjourned at 8:22
Moved: Chuck, W3CDY
Seconded: Don, N0VGA
Carried
Minutes submitted by: Mike, KC3BLF

december 2016

sunday	monday	tuesday	wednesday	thursday	friday	saturday
				1	2	3
4	5 LARES/RACES Net 7:10 pm	6 LVARC Mtg 7:30 pm	7 District 2 RACES Net 7:10 pm 147.255	8	9	10
11 Deadline to Schedule VE Test	12 ARES/RACES Net 7:30 pm	13	14 District 2 RACES Net 7:30 pm 147.255	15	16 VE Test Session Hanover Elem. School 6:30 pm	17
18	19 ARES/RACES Net 7:30 pm	20 Hands On Night Tri-Clover 7:30 pm	21 District 2 RACES Net 7:30 pm 147.255	22	23	24
25	26 ARES/RACES Net 7:30 pm	27	28 District 2 RACES Net 7:30 pm 147.255	29	30	31

notes

The December meeting usually has voting for club officers. This year there are just enough eligible nominees to fill the available slots, so there will be no election. Paul (N0KIA) will be giving a presentation on Tactical call signs. The hands-on night is our Christmas party (cookie cruncher) and participation drawing.

LVARC Club Announcements

Your VOX input is needed!
Send any VOX submissions to:
John, WB3DX at johnahilderbrand@gmail.com
The VOX is your newsletter. Feel free to submit articles and pictures for inclusion of the VOX.

General Interest

Architectural Change Request

I live in a townhouse and had to submit an Architectural Change Request for approval to install an amateur radio antenna. I wanted to include the photo shown below. I prepared the photo with Adobe Photoshop Elements 15. I wanted to do it in in such a way to show what an 8 foot antenna looks like which is why I put myself next to the antenna. I've got my fingers crossed.

John Hilderbrand (WB3DX)
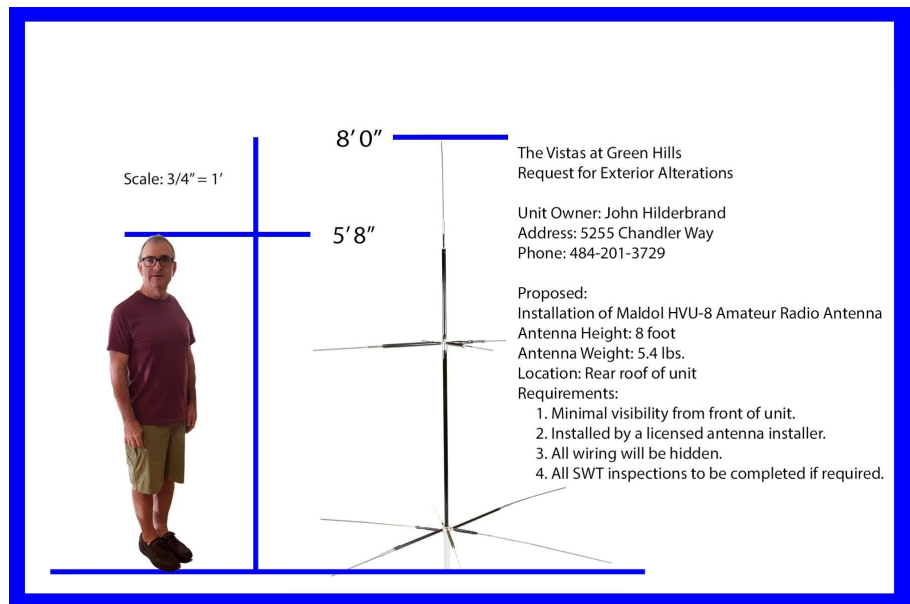
The following article submitted by John Borchers (W3AMD):

Ground Gain in Theory and Practice

LVARC Club Photos

Hanover Township Fall 5K

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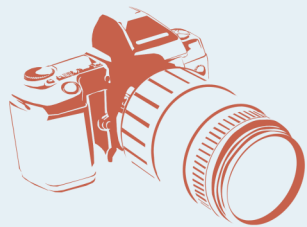
Mark (AK3M)
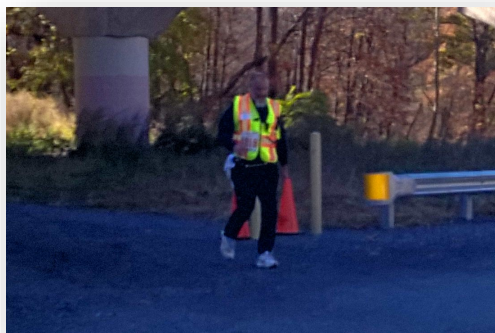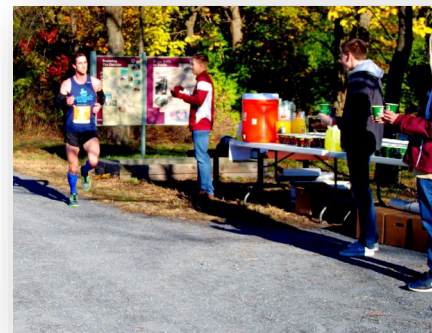
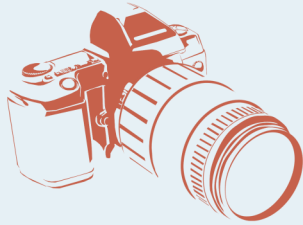Photos courtesy of Mark S. Miller (AK3M)

LVARC Club Photos

D&L Heritage Half Marathon

Photos courtesy of Don Hoppes (NØVGA) and Michael Mandell (KC3BLF).

The High and Mighty

When watching the movie "The High and Mighty" today staring John Wayne, there is a shot of the radio shack on a merchant vessel. If you look close on the wall behind the radioman you can see a QSL card of W1AW and the ARRL logo.

Larry Miller
Amateur Radio Extra Class (NR3R)

U.S. Coast Guard!
Past Active
Past Reserve
Present Auxiliary

I ❤ PHOTOGRAPHY