click here to go to web site

MARCH CLUB HAPPENINGS

NUT NET
3.985mhz
Monday-Saturday
8:15am CT

Milwaukee-Florida Net
Every Day on 14.290 Mhz
7:00AM - 9:15AM ET
6:00AM - 8:15AM CT

Club Meeting
St. Peter's Episcopal Church,
7929 W. Lincoln Avenue, West Alli
March 8,2016 7:00 pm
Program
Wisconsin QSO party

Join us for a pre-meeting dinner
at Johnny V's Classic Cafe
1650 S 84th St at 5:00pm

Wisconsin QSO Party
March 13, 2016 - 1800Z to 0100Z March 14
(1:00PM CDT to 8:00PM CDT on Sunday, March 13)
(The first day of Daylight Savings Time)

2016 Field Day planning meeting is scheduled for Tuesday, April 19. (see pg 2 for more info.)

WARAC 2-meter net
Every Wednesday at 8pm
MATC repeater 147.045 standard offset
127.3 Hz CTCSS

Club jackets and hats!
Go to club Web site and click on
The GOLD MEDAL IDEAS block
For more info or click here

The President's Shack March 2016

We're into March and hopefully Spring will be here soon. Lots of National Parks On The Air opportunities coming up as the weather gets warmer.

Right around the corner is the Wisconsin QSO Party on March 13! This year it falls after the March club meeting, so this meeting will be all about getting ready for WIQP! We'll focus on several aspects of the contest - CW and phone, fixed and mobile, strategy and logging software. Plus anything else you want to bring up.

So make your plans and bring your questions to the meeting. If you need help with anything, now or after the contest, please ask! And look for a separate WIQP article in this Hamtrix.

And when it's over, **we want your log**. Don't think you didn't do well enough – in the past we've received logs with just two or three QSO's. Email (electronic) log submission is preferred. If you use a contest logger, e.g. N3FJP or N1MM, this is very easy, both for you and for our team. Again, if you need help, please contact Howard or another team member.

Be sure to set your clocks ahead on March 13 and be ready for WIQP, starting at 1:00pm!

Plans for future meeting programs include presentations on weather, and Flex Radio and a visit by an ARRL representative. And in particular, a **pizza/auction meeting is planned for May**. Save your stuff, save your money and prepare to come hungry.

Don't forget our before-meeting dinner at **Johnny V's Classic Café, 1650 S. 84th St.** at 5:00PM. See you at the meeting! Bring a friend!
Tom, K9BTQ

From the Editor

Some of you may know I have been relearning Morse code since I retired. I'm doing ok on receiving but haven't really spent much time on sending.

Is anyone interesting in getting on the air one or two nights a week, to improve sending and receiving of Morse code? I remember my Elmer getting on with me to get my speed up to the general license speed required when I tested for it.

For me the best way to improve is to just do it. But I need some self generated pushing to do it! So this is it.

I can see a couple of ways to do it. We can be on the higher bands so techs can join us. Or depending on the distance between stations find a hf band that will work.

If anyone wants to try this let me know at the meeting or email me.
Frank

Field Day 2016 Planning Meeting--Save the Date!

2016 Field Day planning meeting is scheduled for Tuesday, April 19. At this time, last year's New Berlin Field Day site is our first choice, but remains tentative, permit pending, from the City of New Berlin. I'm waiting on final confirmation for the meeting location so watch your email and the April Hamtrix for location information.

Hope to see you there and get your thoughts for Field Day 2016!

WARAC General Meeting Minutes
February 09, 2016

Introduction
The meeting was called to order at 19:08 by President, Tom Macon (K9BTQ). Overall meeting attendance was 21 members, plus 2 visitors.

Future Programs
- March '16: WIQP – March 13th
- April '16: ARRL Presentation?
- May '16: Pizza & Auction
- June '16: Field Day 2016

Tonight's Programs:
- Tutorial on Hex beam antennas by Mike Johnson (WO9B)
- Demonstration of MorseRunner by Tom (K9BTQ)

Business

Motion was made and accepted to approve the January general meeting minutes as published in Hamtrix with an amendment regarding the "remote" comment. Archive minutes will be corrected.

Mike Johnson (WO9B) reported the recent outing in NPOTA, as mentioned in this issue of Hamtrix. The group discussed the popularity and pileups.

Tom noted the Hamtrix and its quality articles – particularly, Howard Smith's (WA9AXQ) Heathkit article.

Mike Johnson received his gold rush coin from the California QSO party

The group discussed the Minnesota QSO party.

Mention was made of Kettle Moraine Radio Amateur. Some original members were in attendance and they have stories to tell.

The meeting was adjourned at 20:53.

Respectfully submitted,
Erwin von der Ehe (WI9EV)
Secretary, W.A.R.A.C.
2016-02-09

W.A.R.A.C. Board Meeting
February 23, 2016

Howard Smith (WA9AXQ), called the meeting to order at 19:04.

Present: Tom Macon (K9BTQ), Steve Dryja (NO9B), Howard Smith (WA9AXQ), Erwin von der Ehe (WI9EV), Dave Garnier (WB9OWN), Al Hovey (WA9BZW), Frank Humpal (KA9FZR).

Howard (WA9AXQ) gave the monthly Treasurer's report. The general fund and scholarship fund are in good shape.

Tom (K9BTQ) mentioned the preparations for the Wisconsin QSO Party.

Programs
March, 2016: WIQP
April, 2016: Topic to be determined. Tom (K9BTQ) will contact presenter
May, 2016: Pizza Night & Auction – donations for pizza will be accepted
June, 2016: Field Day 2016 – Chuck Dellis (W9WLX)
July, 2016: Software defined radio

Future Program Ideas
Spotting
FM38 Repeater System
Badger Weather Net – Sullivan
SO2R Contest operating
Logger 32

Other Items
Amendments to W.A.R.A.C. Constitution and Bylaws were discussed and changes recommended for final draft. Potential changes will be reviewed at the next board meeting.
W.A.R.A.C. operation manual is scheduled to be updated and reviewed in the April board meeting.
Various members have assignments for various club functions
Tom & Erwin will update membership database content. Also, make a procedure for use. Also, improve some features in progress.
2-meter net continues and needs some more check-ins.
Replacement of the club video projector was discussed.
Meeting was adjourned at 20:30.

Respectfully submitted,
Erwin von der Ehe (WI9EV)
Secretary, W.A.R.A.C.
2016-02-23

ROLLING INTO THE 2016 WIQP
Part 2

By Mike Johnson, WO9B

To catch you up, last month everything was coming up roses for my planned QRP CW rover operation through west central Wisconsin. The radio, an HB-1B with a handful of repurposed Li-On batteries all checked out. The antenna, a homemade end-fed with 60' of wire with "Wonderstick" support, ready to go. The keyer to connect the radio to the laptop running N1MM, prototype checked out, waiting for a new Arduino Mega board. I was cruising to the starting line. Smooth sailing on a calm sea. As Al McGuire would say, "It is all seashells and balloons".

Well, with two weeks to go, I can roundly report the wheels have all fallen off the cart!!

Where do I start? Oh heck let's start with the laptop. You'd think that it would be the most solid piece of equipment. Not true. Seems I upgraded to Windows 10 a few month back. Pretty smooth all in all. Well, smooth until now. One of the cute features of Win 10 is that you give up a lot of choice regarding the upgrades. So in full auto-upgrade fashion, in the last two weeks it broke the laptops mouse pad driver. No kidding. The only way to make it work is to have a USB mouse plugged in. The kind of mouse with the 1 meter antenna attached. Perfect. Turns out I should be buying stock in a ferrite bead company.

Challenge #2: The Keyer. This has not gone well. Going from the breadboard to the Mega with ProtoShield has been nothing short of a nightmare. I bought the new arduino board off of Ebay. The pricing is really good, but be warned, and I was, that the USB driver chip is different than the original Arduino's. Without going through all the details, it took me 2 days to iron out the difficulties and actually get the Arduino IDE to recognize the connection. Actually, the IDE was not the problem, it was once again Win 10 and it's insistence on a 64-bit signed driver. I lost count of the computer reboots, but am thrilled to report that with the precision of a Voo-Doo ceremony, it is now communicating almost reliably. Some days are better than others.

Challenge #3: The Keyer Sketch: You'd think a mature software package, despite being somewhat complex, would have all the bugs worked out. Hahahahaha. The long and short is that it would not compile. The compiler reported more problems than lines of code it was checking. Naturally, I have zero ability to decipher what it is saying. So, off to the Yahoo Users Group I go. Turns out I'm not alone. There are plenty of people with the same problem, but unfortunately, they do not share my pending deadline. In the end, I got it to load only to find out I could not make it perform as needed. Great. Now what? I need a way to automate the CW or I'm in big trouble.

In what was my darkest moment, inspiration hit: I have a DigiKeyer II. A handy MicroHam device with the necessary keyer built in. So I hook it up. OMG it works. It works really well. The only downside is this unit brings with it all the wires needed to connect my Kenwood 850, and that is a lot of wires, PLUS it needs a 12 volt power source. Well, I can handle the wires and

they come already with the ferrite beads, a feature I have grown to appreciate. The 12 volts however are a problem. I don't want to tap into the car battery for anything. I am afraid I'll be left with a dead battery at some point and that would really ruin my day and ability to ride off into the sunset. I guess the motorcycle battery will do the trick. A quick test proves that this can indeed work.

I think, I am finally ready.

So let's test it out. Well the South Carolina QSO Party presented a decent opportunity. The only exception being I'm not going to do this from the car, but am going to try it from the shack. That's the   plan.

Saturday morning rolls around and I start the setup with 30 minutes until the contest starts. I cobble it all together and amaze myself at how many wires and clutter I can deal with on a desk top.   Guess what? That's right, none of it works. The laptop won't communicate with the DigiKeyer II. The mouse, of course doesn't work. The DigiKeyer II trips out on a power error because the battery has run down to some degree and that, as they say, is that. Oh, and the radio won't key from the DigiKeyer II because it uses a stereo plug and the radio requires a mono plug for exterior keyer's which it sets automatically on power up. Oh yeah, this is a first class mess.

So here's where I'm at: I did get the desktop computer to work with the DigiKeyer II and also figured out how to get the radio to power up correctly in the mono plug mode. I did eventually get on the air in the SCQP and ended up having some fun. It turns out my motorcycle battery is toast and I need to get a new one, which actually is a good thing to find out. And I have yet to successfully get the laptop to play nice with the DigiKeyer II and N1MM.

So I've got some issues and about one week to sort them out.   I am also about to embark on a mobile odyssey with almost no back up systems. That is a pretty stupid thing to do, but I'm not seeing any way around it. I've only got the one radio and the one laptop. If the radio fails, I'm out. If the laptop and/or keyer goes, I can switch to manual sending and logging mode. That does not sound like a lot of fun.

The good news is I have my route all set up. I'm going to start in Clark County and then go to

Jackson, Wood, Monroe and finally Juneau. I plan to spend an hour in each place working 20, 40 and maybe 80. I am going to try to start each setup at the top of the hour and work the 20 and 40 bands for 20 minutes each. If I do 80, it will be only for a few minutes. Than I want to tear it all down and move locations in time to hit the top of the hour again. If I have any time left, I will try Sauk. It will take everything going well to make that happen. We will see if this works. Based on how well things have gone so far….this could be a very long day.

Wisconsin QSO Party - 2016
By Tom Macon, K9BTQ

Our club is the sponsor of WIQP and proud of it! As it says on our WIQP website, WARAC has sponsored this annual event since 1979, which makes the 2016 WIQP our 38th annual.

This on-the-air operating event is popular with stations in Wisconsin, across the country and the world. I encourage all WARAC club members to participate and proudly mention they are members of WARAC, the sponsoring club.

We talk a lot about CW, mobiles and activating counties because a lot of entrants are attracted to our Party by this competition, but it's not for everybody. There are lots of other ways to participate – phone, casual QSOing and VHF operation, too.

A unique thing about WIQP is that there's something for everyone, from big-gun contesters to casual little pistols. You can participate in whatever way you'd like and remember that the overall goal is for everyone to have fun.

So we want everyone! The more stations participating, the more QSO's will be made, and that makes it more fun. Be sure to read the Rules, get on the air and join the **Party on Sunday, March 13 - 1:00 PM to 8:00PM.**

At the upcoming meeting we'll talk about the in's and out's of the QSO Party, with emphasis on strategy. We'll also talk about logging software, especially version 3.5 of the N3FJP logger. Go to the WIQP web page and look under Logging Software for details on using N3FJP's WIQP logger. By the way, if you're running a version earlier than 2.0, please upgrade. It will work better for you and for our log checking team.

Any and all questions are fair game. **If you have something you're wondering about, please bring it up** - at the meeting or otherwise. Meanwhile, please visit the WIQP website at http://www.warac.org/wqp/wqp.htm.

A big thing with QSO parties is county activation. Our party is an opportunity to work some of the "rare" Wisconsin Counties, but they can't be worked if they are not on the air. We need to get activity in all Wisconsin counties. If you're planning a portable or mobile operation, look at **Activate All 72 Counties** (http://www.warac.org/wqp/activate.htm) on the WIQP website. Click the Table link to see county activity data from 2013, 2014 and 2015. You can also download the activity data in spreadsheet format for your slicing and dicing pleasure.

Those of you working toward your **Worked All Wisconsin Counties Award (WAWC)**, also sponsored by WARAC, can use this as the place to find many Wisconsin counties on the air at the same time. WIQP QSO's count for WAWC (as long as the station worked submitted a log).

So please make plans to be on the air – Sunday, March 13!   Just seven hours of fun!

And, when it's over, don't think you didn't do well enough to submit your log. Every year we receive logs with just two or three QSO's. Again, if you need help, bring your questions to the meeting or contact one of our WIQP team members: Chuck, W9WLX; Howard, WA9AXQ or Steve, NO9B or myself.

And I want to thank the above team members and everyone who has contributed to making WIQP a success over the years. Thank You!

Have fun on the 13th!

Tales from HeathKit
By Howard, WA9AXQ

During the summer of 1968, I was carpooling from LaPorte, IN to St. Joseph, MI with an engineer that worked in the TV Labs at HeathKit. He was involved in the design of an Advanced Color Television, which would later become the GR-2000 Digital-Design Color Television, announced sometime in 1973.

HeathKit was no stranger to Color Television kits. Their first one was a GR-53, a 21 inch round screen. It came out in 1964, and I built one for my family during my junior year in high school. It was a massive kit, with lots of parts, several circuit boards, a chassis, tubes, and of course, the picture tube. It was shipped by truck, and came in 2 boxes, the parts, chassis, etc, in one and the picture tube in the other. The chassis was designed by RCA, and everybody at that time used the same chassis, and even had to pay a $50 royalty to RCA. They were also required to use the RCA picture tube. That later changed, and other CRT manufacturers like Sylvania were used.

HeathKit wanted the GR-2000 to have a digital tuner rather than the mechanical turret tuners that were common. They liked the idea of using an SCR device in the sweep circuit. They wanted the design to use plugin modules for various functions. They planned to offer to repair any module for a fee of $5, so keeping the GR-2000 running would be pretty simple. And, the picture tube would be a 25 Inch rectangular tube. They wanted to put the time and the channel number on the screen. And, they wanted the tuning to be programmable so you could select which 16 channels, VHF or UHF, could be tuned. Unselected channels would be skipped over.

That was a simple but interesting list of features. But, how did they stack up against the likes of RCA, Zenith, and Sylvania, probably the top 3 color tv suppliers of the time? To find out, Heathkit sent the engineers from the TV Lab to the retail stores to view the competition. There were many conclusions, but the two that I remembered were that the top RCA model had a great picture, and it also used SCR devices in the sweep circuit. The best picture tube was in the Zenith tv, and was built by the Rauland subsidiary of Zenith Radio. So, Heathkit purchased the top of the line RCA color tv set, and also sent a group to Zenith Radio to negotiate to use the Rauland picture tube.

The first stop for the RCA color tv was the photolab, where the circuit boards were carefully removed and photographed. With a lot of effort, the schematic was recreated. The design was

EXPERTS AGREE
The TV of the future is here...
in the Heathkit Digital-Design
GR-2000 TV

At **ELEMENTARY ELECTRONICS** they said: "The fact is, today's Heathkit GR-2000 is the color TV the rest of the industry will be making tomorrow ... there is no other TV available at any price which incorporates what Heath has built into their latest color TV."

The **FAMILY HANDYMAN** reviewer put it this way: "The picture quality of the GR-2000 is flawless, natural tints, excellent definition, and pictures are steady as a rock. It's better than any this writer has ever seen."

POPULAR SCIENCE pointed out "more linear IC's, improved vertical sweep, regulators that prevent power supply shorts, and an industry first: the permanently tuned I.F. filter."

The **RADIO-ELECTRONICS** editors said the Heathkit Digital TV has "features that are not to be found in any other production color TV being sold in the U.S.:

"*On-screen electronic digital channel readout* ... numbers appear each time you switch channels or touch the RECALL button ... *On-screen electronic digital clock* ... an optional low cost feature ... will display in 12- or 24-hour format ... *Silent all-electronic tuning.* It's done with uhf and vhf varactor diode tuners ... *Touch-to-tune reprogrammable, digital channel selection* ... up to 16 channels, uhf or vhf ... in whatever order you wish ... there's no need to ever tune to an unused channel. *LC IF amplifier* with fixed ten-section *LC IF bandpass filter* in the IF strip ... eliminates the need for critically adjust-

ed traps for eliminating adjacent-channel and in-channel carrier beats. No IF alignment is needed ever. *Touch volume control* ... when the remote control is used ... touch switches raise or lower the volume in small steps."

POPULAR ELECTRONICS took a look at the 25-in. (diagonal) picture and said it "can only be described as superb. The Black (Negative) Matrix CRT, the tuner and IF strip, and the video amplifier provide a picture equal to that of many studio monitors ..."

Furthermore, the Heathkit GR-2000 is an easier kit-form TV to build. **POPULAR ELECTRONICS** pointed out that "Each semiconductor has its own socket and there are 12 factory-fabricated interconnecting cables ... The complete color adjustments can be performed in less than an hour."

To sum up, **POPULAR ELECTRONICS** concluded its study by stating, "In our view, the color TV of the future is here — and Heath's GR-2000 is it!"

Why not see what the experts have seen? The Heathkit Digital Design Color TV — without question the most remarkable TV available today.

Mail order price for chassis and tube, $659.95. Remote Control $89.95 mail order. Clock, $29.95 mail order. Cabinets start at $139.95. (Retail prices slightly higher).


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so new that the SAMs Photofact was not yet available! The whole IF section was replaced with a 10 stage LC bandpass filter, eliminating the need to do an IF alignment. Using filters in an IF section had become standard faire in most Heathkit Radio products. The NTSC signal bandwidth presented a slight problem for the LC bandpass filter with the audio tap signal being down about 6dB. This was easily solved with a 6dB amplifier. It was known that RCA had to use 2 selected SCRs in the sweep circuit. That would not work well with a kit, because the kit builder did not have any way to make that selection. Providing a pre-built and tested sweep module was not an option due to cost. The TV Lab engineers took on the challenge to find out why the selected part was needed, and redesigned the sweep circuit to remove this limitation. The color picture tube from Rauland was a real problem. It clearly was the best color picture tube in the industry, and Zenith knew it. They could not be convinced to supply it to Heathkit. So, the kit came out using a 25 Inch rectangular picture tube from Sylvania.

The GR-2000 went through the proof build process, and was announced as a product in 1973. I believe it was a big success. They also offered it in a slightly smaller size with a 21 Inch square picture tube, the GR-2050.

My working at HeathKit during the summer of 1968 was both a great opportunity, and a lot of fun. It is just kind of sad that the electronics technology moved to surface mount, custom ICs, and generally smaller packages. All of these contributed to the final downfall of Heathkit. As they have said, it was fun while it lasted.

I hope you have enjoyed these articles. I have certainly enjoyed writing them. It brought back some nice memories.

Howard, WA9AXQ
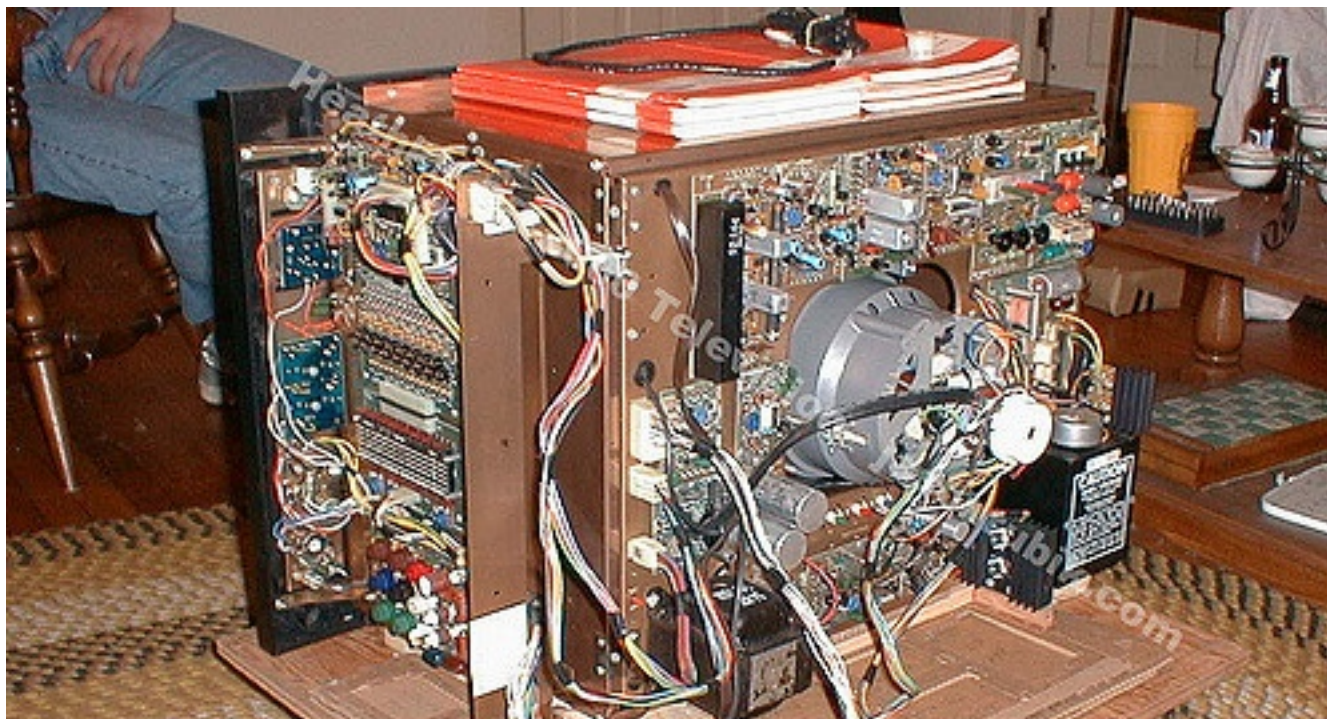
Radios currently in the clubs inventory. If you have any interest in them contact Steve Dryja NO9B email sd3534@zoho.com or phone 262-679-1664

Hallicrafters
S-53

Hallicrafters
S-38B

Hallicrafters
Sky Buddy S-19r

Hallicrafters
S-40A

Hallicrafters
Sky Buddy 5-T

Hallicrafters
Speaker R-46A

Hallicrafters
S-120A

Sold

Hallicrafters
SX-25 Super Defiant

RCA
ACR-175

Hallicrafters
S-20R Sky Champion

Hallicrafters
S-95

Hallicrafters
S-38C

Hallicrafters
Sx-43

Ham Radio on the Internet
  (click on red web address)

Anyone can submit websites for this column. I'll check them out and include them. The editor

This sites were sent in by Ron N9AU well worth reading.
For about ten years, I taught classes at trade shows on the topic of power and grounding for audio and video contractors. Slides for those sessions are at

http://k9yc.com/InfoComm-PowerSystems2012.pdf

http://k9yc.com/InfoComm-Grounding2012.pdf

An extensive "White Paper" on the topic is at

http://k9yc.com/SurgeXPowerGround.pdf

Earlier in this thread I posted a link to a tutorial I have given at Pacificon and at several ham clubs on the topic, this time focused on ham installations. I'll post it again. It's exactly what Matt is looking for, and it' what any ham ought to be studying carefully.

http://k9yc.com/GroundingAndAudio.pdf

73, Jim K9YC

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http://www.warac.org

See our Web Page or contact us for more information on

- WARAC Memorial Scholarships
- Wisconsin QSO Party
- Midwinter Swapfest
- Worked all Wisconsin Counties Award
- Amateur Radio Classes

WARAC holds meetings on the second Tuesday of each month and board meetings on the fourth Tuesday of each month. Meetings are held at 7:00 PM at:

**St Peter's Episcopal Church
7929 W. Lincoln Avenue
West Allis, WI**

Entry is off the alley at the rear of the church. A wheel chair ramp and chair-lift are available.