



# FOX CITIES AMATEUR RADIO CLUB

# QSO'ER



Volume 14, Issue 20

June 2001

Next club meeting  
(always the 3<sup>rd</sup> Mon. of the month)

**June 18 at 7:00 PM**

at the Columbus Club  
2531 N. Richmond St. Appleton

\*Next meeting will be  
a joint meeting with  
the VHF Association

\*\*\*\*\*

Next board meeting

**June 25 at 7:00 PM**

Meeting is held at Mr. Cinders West.

*All are welcome*

Fox Cities Amateur Radio Club W9ZL

# HAM DINGER NET

145.330/R 100hz PL

Wednesday eve at 7:30pm

*Everyone is Welcome to check in!*

## Meeting Minutes

The meeting was called to order on the 21st of May, 2001 by Pat Latour K9IK at 7:05PM. All meeting minutes were approved as listed in the newsletter.

Meeting was adjourned at 7:35 PM.

The club elections where held.

## CLUB OFFICERS

### President

Acting president Jon Oldenburg

### Vice President

Jon Oldenburg AB9AH  
jonandvalerieoldenburg@worldnet.att.net  
832-9727

### Treasurer

Dave Sprangers N9ZHZ  
dopyro@new.rr.com 722-2515

Secretary/Newsletter Editor  
Al & Judy Van Dynhoven KB9BYQ  
kb9byq@new.rr.com 830-1859

### Membership Coordinator

Steve Lamers N9SGG  
stewel@itol.com 749-8824

### Members At Large

Steve Pelletier KB9OAL  
kb9oal@new.rr.com 734-9547

Bill Vincent N9TNW  
wvincent@execpc.com 739-6827

Chuck Hanson N9OEQ  
chanson1@new.rr.com 788-5497

### Editors note:

Remember anything you would like published in your newsletter must be submitted to Al KB9BYQ by the 1<sup>st</sup> of each month.

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### Club Meeting Attendants

James W. Wierzba	WB9OJE
Chad Pennings	N9PRC
William Vincent	N9TNW
Al Van Dynhoven	KB9BYQ
Judy Van Dynhoven	
Steve Lamers	N9SGG
Dave Sprangers	N9ZHZ
Steve Pelletier	KB9OAL
Pat Latour	K9IK
Chuck Hanson	N9OEQ
Brian Long	KB9LRD
Jon Oldenburg	AB9AH
Maury Mead	W9FBC
Jim Sheetz	K0OQO
Gerry Radtke	WA9GON
Hal Sieth	NQ9F
Judy Schneider	N9PBM
Gary Van Ryzin	W9HM
Don Quinn	W9OVK
Bob Pratt	W9ZC
John Ensley	N9RJZ
Greg Schneider	W9IEI
Tim Day	K9PWW
Rick Mandel	KB9LRE

### **Trained Operators Needed:**

Outagamie County ARES will be coordinating communications for the **Xtreme Race**, which will be held on **Saturday, July 21, 2001**, beginning from Wildman's Whitewater Ranch on the Peshtigo River west of Crivitz, Wisconsin.

The Xtreme Race is in its fourth year and will feature 200 competitors, in teams of four, who will traverse a 50 mile course in Northern Wisconsin's Nicolet National Forest. The teams will test their mettle by kayaking, whitewater rafting, mountain biking, hiking, rock climbing and rappelling.

The race will begin at 2:00 a.m. on July 21, 2001, and last until approximately 3:00 p.m. that day. ARES members who volunteer to help with communications for this event will be entitled to free camping at Wildman's Whitewater Ranch from Thursday, July 19, through Sunday, July 22. A number of meals will be provided, as well as, a nice Xtreme Race T-shirt. Race communications will consist of emergency and logistics communications. Operators will be located at check-points along the course and communicate with base command via repeater. Two shifts will be scheduled to accommodate the long communications period. A pre-race meeting will be held at 7:00 p.m. on Friday, July 20, at the Ranch. The course will be plotted on maps and you will receive your assignment prior to the race. An informational meeting will be held in early July.

Because of the terrain of the National Forest and the length of the course, you will need a mobile radio in a car. If you have cross-band repeat capability, that may be of benefit. We will have two repeaters at our disposal; one the local 145.470 MHz repeater, located near High Falls Flowage, as well as the 145.150 Outagamie County Red Cross repeater, which will be transported to a 1670 foot peak in the National Forest. It is not believed handheld radios will work. Other operating essentials include; insect repellent, food, water, compass or GPS unit, maps, sun screen, layers of clothing, etc. Although the race has never encountered severe weather, the end of July is peak severe weather season in northern Wisconsin, so we must be prepared.

If you have expressed interest in helping with this race, this is additional information for you. If this is the first you are hearing about this event and you are interested in helping, please contact Bill Niemuth, KB9ENO, in the following ways:

920-779-0611 Home      920-721-6278 Office  
 800-411-0867 Pager      920-205-2298 Cell  
 bniemuth@execpc.com

@kcc.com

This is going to be a truly memorable event. The race will have a tremendous amount of media coverage, be in a communications-challenged area and have the potential for emergencies and severe weather. We can provide a wonderful service to these folks, witness a unique event, stay at a nice ranch and provide critical communications to these nice folks. I look forward to hearing from you, if I have not already.

73,  
 Bill, KB9ENO  
 William M. Niemuth  
 EC, Outagamie County ARES President, EC Resources, Ltd.

### Board Meeting Attendants

Jon Oldenburg	AB9AH
Steve Lamers	N9SGG
Bill Vincent	N9TNW
Al Van Dynhoven	KB9BYQ
Judy Van Dynhoven	
Brian Long	KB9LRD
Steve Palletier	KB9OAL
Chuck Hanson	N9OEQ
Jim Sheetz	K9OQO
Judy Schneider	N9PBM
Greg Schneider	W9IEI

Club Election Results:  
Secretary – KB9BYQ Al and Judy Van Dynhoven  
Membership Coordinator – N9SGG Steve Lamers  
Members At Large – N9OEQ Chuck Hanson  
KB9OAL Steve Pelletier  
N9TNW William Vincent

There where no nominees for the club president.  
**CONGRADULATIONS TO ALL ELECTED BOARD MEMBERS!**  
*and*  
**THANK YOU** for stepping up to help the FCARC.

### **Board Meeting Topics Discussed**

At the May board meeting, the agenda was:

- It was decided that a newsletter would be sent to the VHF Association members to announce the joint meeting in June. Jim Sheetz K9OQO provided Steve Lamers N9SGG with a complete list.
- Jon Oldenburg AB9AH will be working on checking on the location of all the club equipment. The club cabinet is located at Jon's house and in there is a sign out listing. It was mentioned that the equipment was inventoried last year. This inventory list will try to be tracked down.
- Brian Long KB9LRD brought the club brochure that he has been working on re doing. The original file was lost due to a computer crash. These brochures will be handed out at club functions. It was also discussed where else the brochure could be placed – Radio Shack, Swapfest, VE testing sites.
- Brian Long KB9LRD discussed doing a mass mailing to all hams in the area to try and generate new club members. It was decided that another document besides the brochure would need to be created for a mailing.
- Several members have spoken with George Croy. George has agreed to take care of the club website VE testing dates. The club will provide George with the needed software to perform this function.
- It was noted that on the club membership application in the newsletter that their needs to be a place for applicants email address. Al and Judy Van Dynhoven will make the needed change for the next newsletter.
- Steve Lamers N9SGG will provide an article about the JDF walk for the newsletter.
- The club bilaws will be made available at each club meeting.
- The presidents open position will be brought before the nominating committee again. Brian Long KB9LRD was recommended for the position.
- Bulk mailing postage rate was discussed. We do not have enough to warrant this and also with the turn to electronically doing the newsletter this idea was dropped.

### **ARES / SKYWARN NET REPEATERS**

147.24 WINNEBAGO COUNTY  
146.655 OUTAGAMIE COUNTY  
147.30 CALUMET COUNTY  
146.925 WAUPACA COUNTY  
145.35 SHAWANO COUNTY  
146.835 BROWN COUNTY

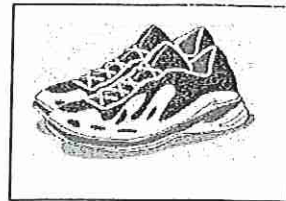
### **PASS - COUNTY LIAISON REPORTING NET**

147.27 PASS / NWS NET - GRB-NWS CENTRAL & NORTHERN COUNTIES  
145.19 PASS / NWS NET - GRB-NWS SOUTHERN COUNTIES

Tentative Outagamie County ARES Meeting Thursday July 5<sup>th</sup>.  
For further information check into ARES net on the Sunday evening at 8:00 PM.

## JDF WALK 2001

The Juvenile Diabetes Foundation (JDF) Walk this year was held on May 19, 2001, once again the FCARC provided the radio communications, keeping the universe, and the walkers, safe from harm.



In spite of the fact that this event happens on the same weekend as the infamous Dayton Hamvention, and even though they contacted us a month before they needed us, we still had several FCARC club members who were willing to volunteer their time to help out.

We met at Erb Park at 8:00 AM. The first volunteers on the scene were Mark Heimmermann KF9CS and Rick Mandel KB9LRE. Brian Long KB9LRD and Steve Pelletier KB9OAL went directly to their assigned positions.

After we had some coffee and cookies, we got our t-shirts and maps of the walk. As, you know, the t-shirts are a highly valued prize, that people who volunteer for these community service events collect as treasured reminders of their volunteer experiences. Most of my current wardrobe consists of these highly coveted t-shirts. I am cheap and volunteer for a lot of these things.

It was a beautiful day for the JDF walk this year, and I was told there were 3500 or more participants that day. Some were walking, others running, some pulling wagons with small children, and of course, there were those on roller-blades. This year, however, the route was all on level streets, so the participants on roller-blades didn't encounter any treacherous hills, like they did several years before.

The start/finish line was at Erb park so, as the net control operator, that's where I, N9SGG, stayed. At about 8:45 AM we announced the beginning of the net on the W9IEI 443.650 MHz repeater. Promptly at 9:00 AM the crowd took off and the net was in progress.

There were two courses the walkers could choose from. One was a 5 kilometer walk, and the other was a 10 kilometer walk.

To cover the 5 kilometer walk we had Steve KB9OAL and Brian KB9LRD handle the job. Steve was sent to cover the first rest stop at the Outagamie County Courthouse, and Brian went to City Park.

Steve made a comment, during the walk, about how fast the supplies were consumed at the first rest stop. "It was a like a feeding frenzy", he said, "The water and snacks were gone in no time."

Mark KF9CS was at the third rest stop on the walk, near Peabody Park. The map of the event we got wasn't too clear as to where Mark should go, but he found the right place and was on sight when the walk began. Mark did a great job and was quick to respond each time he was called.

Rick KB9LRE, was sent out on the sag wagon. The sag wagon had to pick up some supplies from the first rest stop and transport them to where Steve was at the Outagamie County Courthouse. Rick provided us with information about the last walkers, so that during the event, the walk officials could keep tabs on where the end of the walk was.

The JDF foundation expressed their sincere thanks to the FCARC for providing their event with communications, and for our experienced operators who handled the massive event with ease. One of the chairpersons from the JDF foundation had made the FCARC a weather resistant banner, free of charge. The banner was placed on a picnic table where we also had a scanner tuned to the net frequency. The scanner was connected to an external speaker and was loud enough to be heard by a vast majority of the crowd that was in attendance. They could hear us in action and it gave them an idea of what we do for these events, as well as provided information about how the event was progressing. The scanner was a valuable demonstration to the general public about ham radio and the FCARC's involvement in communities events such as this.

No injuries were reported during the event, but we had several lost children. The children had become separated from their parents during the event. Shortly after word went out to each of the stations, the children were found and were reported to be with other members of their team. Other team members, friends of the parents, were at Erb Park by this time and heard the good news on the scanner we had set up on the picnic table. Everyone was relieved to hear the good news. It was very good public relations for the FCARC to have the crowd hear this type of health and welfare communications that we provide to the community at these events. We all had a great time. After the event we were fed hot-dogs and chips for lunch. The net was closed at about noon.

Honorable mention goes to other amateur radio operators and club members that helped with the net. Al Van Dynhoven KB9BYQ was at home, and since the walk went by his house, he provided us with information about the last walkers in the event. Also Rick Kosiorek W9RIC, and Judy Kosiorek N9JLQ actually participated in the walk and provided us with information about the walkers near the end of the event. Thanks goes to them.

I would like to thank those that volunteered for the JDF walk and would encourage other club members to volunteer their time and experience to other community events that the FCARC is asked to help. It really is fun, and those people that we do this for, really appreciate us being there.

Many thanks to, Mark Heimmermann KF9CS, Rick Mandel KB9LRE, Brian Long KB9LRD, Steve Pelletier KB9OAL, for helping to make the JDF Walk 2001 a major success.

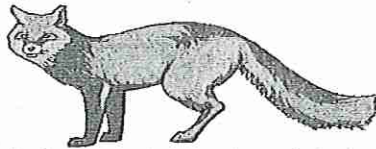
Written by: Steven G Lamers - N9SGG

**BBC to drop North American short-wave transmissions:** The BBC World Service says it's eliminating its English short-wave transmissions to North America, Australia, New Zealand and the Pacific Islands on July 1. "The Beeb" says it will focus its delivery in English via its FM and medium-wave "re-broadcasting partnerships," together with 24-hour on-line audio service.

"We know that our listeners have migrated away from short-wave and are now accessing us on FM, via the Internet and also in some areas on satellite, cable and on mobile devices," the BBC said. "In the US, three times as many people listen to us on FM as on short-wave, and one and a half million users access on-line each month." The BBC says the money saved by closing short-wave transmissions to North America will go towards funding its investment in future technologies. It's been reported that the move will save the BBC some \$700,000 a year.

### TREASURER'S REPORT

\*\*A detailed report can be seen at any club meeting or contact the club treasurer Dave Sprangers N9ZHZ.



Don't forget about the club sponsored  
**Fox Hunt**  
Every  
**3<sup>rd</sup> Thursday of the month.**  
**Come join the fun!**



CLUB WEBSITE ADDRESS:

<http://www.w9zl.ampr.org/>

Suggestions, changes, additions for the site  
need to be submitted to Steve N9SGG –  
stevel@itol.com  
The board will review request.



### *Kid's Day*

*Kid's Day* is just around the corner: On **June 16, 1800 to 2400 UTC**, kids of all ages are invited to experience ham radio during Kid's Day. Amateurs are encouraged to invite youngsters into their shack to enjoy the fun. Kid's Day began in 1994 with a one-hour program created by the Boring Amateur Radio Club in Boring, Oregon. The youngsters exchanged names and their favorite colors. Forty kids participated. Last year, more than 1000 took part in the event, now sponsored by ARRL. There's no limit on operating time. The suggested exchange is name, age, location and favorite color. You may work the same station again if the operator has changed. Call "CQ Kid's Day."

Complete information is on the ARRL Web site,  
<http://www.arrl.org/FandES/ead/kd-rules.html> and in the June issue of QST, p48.

# Understanding the Numbers

By Gerry Radtke, WA9GON

Have you ever listened to WWV (Fort Collins, CO) at 18 minutes after each hour and they give a series of numbers like SFI 146, A-index 10 and K-index 3. You wind up saying to yourself, "Yeah, right! What does that mean." Hopefully, this short explanation will supply some answers to your questions.

The above solar numbers originate from the National Radio Centre (NRC), Penticton, BC Canada. WWV at 18 minutes past each hour and WWVH (Kauai, Hawaii) at 45 minutes past each hour transmit this data with updates at 0000, 0300, 0600, 0900, 1200, 1500, 1800 and 2100 UTC. Some of the frequencies that can be heard are 2.5, 5.0, 10.0, 15.0 and 20.0 MHz. These data messages that originate from the NRC come in four parts.

- 1) Gives the SFI for the day.
- 2) Gives the solar terrestrial activity for the previous 24 hours.
- 3) Gives data on current conditions, i.e., major flares active, unsettled, quiet, etc.
- 4) Gives the expected conditions for the next 24 hours.

Solar activity is the measurement of Sun radio noise at 2750 MHz (10.7 cm). It is often referred to as the 2800 MHz Solar Flux Index (SFI). This is a reference to energies that excite both the E and F layers of the ionosphere. This SFI relates to sunspot activity. Here is a rough guide to SFI numbers and the number of sunspots:

- 68 = No Sunspots
- 77 = 10 Sunspots
- 83 = 20 Sunspots
- 90 = 30 Sunspots
- 104 = 50 Sunspots
- 135 = 100 Sunspots
- 158 = 130 Sunspots
- 180 = 160 Sunspots

As you can see, the higher the SFI number the more sunspots and that means that the E and F layers are more excited. This excitation helps enhance your radio signal.

The Alpha Planetary (AP) is statistics combined from worldwide observatories and given a merit number or Geomagnetic (GEOMAG) readings. These are:

<u>AP Index</u>	<u>Comments</u>
0- 7	Geomag field, QUIET, excellent polar path
7- 15	Geomag field, UNSETTLED, good conditions
15- 30	Geomag field, heralding a STORM
30- 50	Geomag field, MINOR STORM, no polar path signals
>50	Geomag field, MAJOR STORM, no paths open

K- indices are short term, real-time Geomag field measurements. K-indices sometimes relate to AP- indices. These are:

<u>K =</u>	<u>AP</u>
0	0
1	4
2	7
3	15
4	27
5	48
6	80
7	149
8	240
9	400 or greater

Here is some solar activity definitions:

<b>VERY LOW-</b>	X-ray events less than C-class events
<b>LOW</b>	C-class X-ray events
<b>MODERATE</b>	Isolated (1-4) M-class X-ray events
<b>HIGH</b>	Several (5 or >) M-class X-ray events Active
<b>VERY HIGH</b>	Several M5 or greater X-ray events Minor Storm

Geomagnetic Field Variations

<u>TYPE</u>	<u>A-INDEX</u>	<u>K-INDEX</u>
Quiet	0<8	Usually not >2
Unsettled	8<16	Usually not >3
	16<30	Few 4
	30<50	Mostly 4-5
Major Storm	50<100	Some 6 or >
Severe Storm	100<400	Some 7 or >

As one can see, there is a lot of information available to us. It is probably a bit confusing at first but keep this handy and when you listen to the next WWV hopefully this will help you comprehend what is said. In very general terms from all this, the higher the SFI is the better the propagation is. The higher the AP- indices and the K-indices are the worse the HF bands are.

So much for the HF bands, when you get into higher numbers on the AP and K-indices this has a very dramatic effect on 6-meters and higher. So when the HF propagation turns bad, go up to 50 MHz and above and enjoy!



## About the Packerland Amateur Skywarn Society

Andy Nemec, KB9ALN



Regular participants in the weather nets we have in Northeastern Wisconsin may know that in the past year, we've started an organization to manage the Skywarn activities that hams take part in every summer. In the past, Scott Cole, KB9AMM and myself have tried to manage it on our own, only to find that the job was just too big for both of us. At about the same time, the North East Wisconsin Radio League (NEWRL) was looking for a new direction in which to proceed, and this led to the formal organization of the **Packerland Amateur Skywarn Society**. It's an organization designed to support and manage the ham radio Skywarn reporting system not only for our current weather season, but also to take on long range planning and other administrative issues that we find ourselves facing.

The Packerland Amateur Skywarn Society is headed by an 8-member board of directors, with two advisory panelists and an additional repeater technician. I am proud to serve as President, Scott Cole, KB9AMM is Vice-President, Bill Niemuth, KB9ENO is our Secretary and Mike Willis, W9TQV serves as Treasurer. Bob Sanders, N9LXM is our NOAA advisor (he works at the NWS Green Bay Office), Joe Biese KF9DB is our Repeater Technical Coordinator, Mark Pennow, KB9OND and Russ Kain, N9SZZ serve as general board members. County Advisors are Brown County E.C. Lisa Kolbusz, N9VJL and Al Van Dynhoven, KB9BYQ. Paul Blum, K9ARF rounds out the crew as our repeater technician. In the future, we may add additional county advisors.

This year is a building year - both with the organization itself and the infrastructure that we use to carry on the business of severe weather reporting. It has been, and continues to be a challenging year. We found first that we had to relocate the 147.27 repeater. At the same time, we elected to replace it. This was done through the generous donations of time, equipment and effort on the part of Joe, KF9DB and Paul, K9ARF. Unfortunately, their good work has been overshadowed by some site problems that we have had to work around, and may only be completely alleviated by moving the repeater to another site. Local site interference and some intermodulation problems have combined to make the repeater performance less than we had hoped. We are actively pursuing another site that will become available in the coming months. With some luck and hard work, the 147.270 repeater may once again be useable over a wide area for the weather nets.

In the meantime, we have had to "punt". We have had to fall back on what was once a back-up repeater - the venerable 145.190 repeater owned by Ron Shimek, WB9MFB. Ron has supported weather spotting activities for quite some time in Northeastern Wisconsin and we are grateful for his support.

This situation has caused a little bit of confusion on the part of net participants. In the past, liaisons and others have gotten used to the net appearing on the 147.270. However, we have had to use the 145.190 repeater for counties that find it easier to access. This generally includes Brown, Calumet, Kewaunee, Manitowoc, Marinette, Outagamie, Waupaca, Waushara, and Winnebago counties. Northern and Western counties continue to access the net through the 145.110 repeater, which is linked to the 147.270 repeater. Severe weather patterns in our warning area seem to support us using the repeaters in this manner - whichever repeater works best for you is the one we use. However, there may be times when we may use the 147.270, other times when the 145.190 repeater will be more suitable, and still others when we'll run simultaneous nets on both repeaters. Sometimes this can be a bit cumbersome, but for now, it's the only way we can do what needs to be done.

I invite you to contact me with any questions you may have concerning severe weather net operations. You can contact me via E-Mail ([kb9aln@juno.com](mailto:kb9aln@juno.com)), Packet ([KB9ALN@KB9ALN.#GRB.WI.USA.NOAM](mailto:KB9ALN@KB9ALN.#GRB.WI.USA.NOAM)), or better yet, check into our twice-monthly net. It appears on the 147.270 repeater on the **first and third Tuesday nights at 8:00**. In addition to the latest PASS news, we do spend some time in casual conversation. For that reason, we encourage you to check in. You don't have to be an active Skywarn participant to take part in the net - everyone is welcome.

I hope to chat with you on the net. Until then, have a safe and productive weather spotting season and 73.

## UPCOMING TESTING DATES

**30-Jun-2001**

Sponsor: TOMAHAWK ARRL VE TEAM  
Time: 8:30 AM (Walk-ins allowed) Contact: TERRY M COLLINS (715)453-4633  
VEC: ARRL/VEC  
Location: ST MARY'S CATHOLIC SCHOOL  
AUDITORIUM 110 N 7TH ST & SOMO AVE {HWY 86}  
TOMAHAWK, WI 54487

**07-Jul-2001**

Sponsor: FOUR LAKES ARC  
Time: 8:00 AM (Walk-ins allowed) Contact: TIMOTHY J CZERWONKA (608)233-9829  
VEC: ARRL/VEC  
Location: SPACE PLACE 1605 S PARK ST  
WO9U@ARRL.NET  
MADISON, WI 53715

**17-Jul-2001**

Sponsor: SHEBOYGAN COUNTY ARC  
Time: 7:00 PM (Walk-ins allowed) Contact: MICHAEL J MUSIEL (920)946-1476 Email: MMUSIE@EXCEL.NET  
VEC: ARRL/VEC  
Location: RED CROSS/BOY SCOUT BLDG 2032 ERIE AVE  
PRE-REGISTRATION PREFERRED K9SJ@ARRL.NET  
SHEBOYGAN, WI 53081

**28-Jul-2001**

Sponsor: MILWAUKEE RADIO AMATEURS' CLUB  
Time: 9:30 AM (Walk-ins allowed) Contact: JOHN G KRAAK (262)797-6722 VEC: Milwaukee VEC  
Location: AMATEUR ELECTRONIC SUPPLY 5710 W GOOD HOPE RD  
MILWAUKEE, WI 53223

**28-Jul-2001**

Sponsor: TOMAHAWK ARRL VE TEAM  
Time: 8:30 AM (Walk-ins allowed) Contact: TERRY M COLLINS (715)453-4633  
VEC: ARRL/VEC  
Location: ST MARY'S CATHOLIC SCHOOL AUDITORIUM 110 N 7TH ST & SOMO AVE {HWY 86}, TOMAHAWK, WI 54487

**04-Aug-2001**

Sponsor: FOUR LAKES ARC  
Time: 8:00 AM (Walk-ins allowed) Contact: TIMOTHY J CZERWONKA (608)233-9829  
VEC: ARRL/VEC  
Location: SPACE PLACE 1605 S PARK ST WO9U@ARRL.NET  
MADISON, WI 53715

**18-Aug-2001**

Sponsor: FOX CITIES ARC  
Time: 8:00 AM (Walk-ins allowed) Contact: GEORGE R CROY (920)730-0967  
VEC: ARRL/VEC  
Location: RED CROSS BUILDING  
CALL AFTER 4:00 PM  
W9MDP@ARRL.NET  
NO WALKINS AFTER 9:00 AM  
APPLETON, WI 54911

**25-Aug-2001**

Sponsor: TOMAHAWK ARRL VE TEAM  
Time: 8:30 AM (Walk-ins allowed) Contact: TERRY M COLLINS (715)453-4633  
VEC: ARRL/VEC  
Location: ST MARY'S CATHOLIC SCHOOL AUDITORIUM 110 N 7TH ST & SOMO AVE {HWY 86}  
TOMAHAWK, WI 54487