CLALLAM COUNTY AMATEUR RADIO CLUB

QTC

JULY 10

Field Day Report 2010

First of all, a great big THANK YOU to all those who shared their time, talents and resources to make this years Field Day a fun, learning experience! I was pleased to see several different individuals operating each station.

For some of us, much of the fun was setting up the tower, tents, antennas and the food area. It was fun watching the group work together getting the tower ready to crank up. The whole process took a little over two hours because we were being very careful. Rik, WX7RIK, made a time compressed video of the twenty minutes it took to tilt and raise the tower. He posted this on the club web site for your viewing pleasure.

All agreed that the food was great. The Bar-B-Q hamburgers by Chuck, N7BV and the salads by Nita W7DRT, Callie N7YMU and Karen were outstanding!

Kudos would not be complete without mentioning Al Fisk KD7TFK and his incredible portable parts and equipment supply wagon. If we needed it and didn't have it, Al would pull it out of some obscure nook or cranny. Thank you Al!

A highlight of the day was the visit by the Port Angeles Mayor Dan Di Guilio. He read a Field Day Proclamation and was given a tour of the site. The emergency preparedness aspects of the overall setup and especially the tower and antennas impressed him.

I was able to speak with several visitors both ham and unlicensed. Hopefully some of them will be able to attend our club meetings.

The main station with the IC-706 operated in four different modes as W7FEL with the following contact statistics: Ten BPSK, eight CW, six RTTY and forty-two SSB. When thirty-four more by W7DTG are added there was a total of one hundred five contacts. This may not be a "barn burning" total but all had fun working it.

The GOTA station logged thirty-four SSB contacts as W7TTY during the daytime on the Kenwood TS940. Saturday evening Theron W7DTG, brought in his TS850, hooked it to the GOTA antenna and worked thirty-nine more CW contacts as the other half of the W7FEL 2A setup.

I really appreciated the comments and suggestions for next years FD that some of you sent. I've saved these and they will be available for next years FD director.

I look forward to seeing each of you this coming Wednesday at the club meeting.

73,

Dennis Tilton
AD7TV

Get Your License Here!

VE Exam Session
23 July 2010
1900 at PA Fire Station
5th and Laurel

FYI: We are changing our training schedule to include actually teaching a chapter on the third Saturday.

Call Chuck, N7BV
360-452-4672
or
Tom, KE7XX
360-452-8228.

Thanks, Chuck, VE-L

We need articles for the QTC newsletter. This is your newsletter.

Tell us how you became interested in Ham Radio. What did you do over the summer (just like school) huh!

The more you submit the less we have to think of.

Thanks, the staff!

CCARC QTC Newsletter

Just a little back round on the QTC.

We use ccarcqtc@yahoo.com as a repository for information for the newsletter. So if you have something for the QTC, please send it to the yahoo address. Do not sent it to one of the editors as they will just have to turn around and resend it to the yahoo address.

Please make sure the article or information is complete. As we rotate editing the newsletter you cannot be sure which editor will be piecing the newsletter together.

Please remove as much formatting from within whatever program you are using (MSword, edit, clear, formatting) if you know how, before sending it to ccarcqtc. If you feel the creative urge to design a document—please open a design shop, but don't do it and then send it to us expecting to see your creative work transferred to the newsletter.

We do not edit, except to change fonts to a standard non-serf font (Arial which is easer to read than Times Roman). We will run a spell checker.

When first conceived the editors were given free license, it still is that way. It was understood they would endeavor to include everything submitted, within reason. For instance, off color jokes etc are not going to be printed.

Thanks,
Chuck, N7BV Bob K6MBY

Have an idea for a club program? Pass them along to the members of the program committee: Bill Carter, Janet Paris, or Chuck Jones. Thanks.

2 METER NETS

CCARC :
Every Thursday 7:00 pm on the W7FEL Repeater.

ARES/RACES:
Every Tuesday except 1st Tuesday of the month at 7:00 pm on W7FEL Repeater.

W7FEL Repeater: 146.76 MHz., offset down 600 KHz. with a tone of 100 Hz.

Wanted Treasurer

As the saying goes. all good things must come to an end. David, KE7JEJ has informed us he will be moving on with his personal life. This leaves the club looking for his replacement.

The following is a list of the treasurer's duties:

Collect club dues.
Maintain up-to-date financial records.
Pay club bills.
Attend Club meetings, board meetings, and VE examination dates to collect club monies.
Present financial information at meetings as necessary and monthly to the newsletter.
Assist the board in preparing the yearly budget.
The treasurer is an officer of the club and would attend board meetings.

This is not a difficult task nor is it one that takes a great deal of peoples time. . It is your club folks, be a part of it. The club's alternative is to hire a bookkeeper should one of our 100+ members not step up to the task.

CONTACT ANY BOARD MEMBER.

CLALLAM COUNTY AMATEUR RADIO CLUB

Minutes of the General Meeting 9 June 2010

The meeting was called to order at 1900 by the Club President Nita Lyman, KE7DRT. Thirty-six people attended the meeting.

The Pledge of Allegiance was followed by self introductions around the room.

Paul Honore' W6IAM made an ARES announcement asking for some volunteers for Friday June 11, all day at the EOC and Command Vehicle.

Chuck, N7BV announced that there will be a testing session on July 23rd at 1900, repeat, 1900 at the Port Angeles Fire Station.

Tom, KE7XX announced that he has the new Technician manual for purchase. He also noted that the exams after July first will be from the new manual.

Today's agenda was all about field day. Dennis, AC7TV gave a summary of the plans for radios at field day. He included slides of the equipment to be used. A signup sheet was circulated for operating times at the two stations.

Friday we'll meet at about 10 AM to do the layout for stations. 11 AM we can start setting up. This includes the new 70 foot tower. Well new to us anyway.

Saturday at 11 AM is the starting time for operating and it goes for the next twenty four hours.

There will be two stations. The first one is the Get on the Air GOTA (GOTA). The second station will be a multifunction station. SSB, CW, PSK or whatever you want. It's your choice during your sign up period.

Dennis, AD7TV showed the multifunction station and its features.

1950: BREAK

2010: Nita called the business meeting to order.

The minutes of the previous meeting were approved as printed in last month's QTC.

A motion was made to give WA6KNW an Honorary Life Membership in the Club and a plaque. It was seconded and approved unanimously.

Next the group talked about the food schedule for field day. Sandwich's at noon. Burgers cooked on Chucks, N7BV's grill in the Friday evening. Pizza from Ernies, W7EWG, on Saturday. Drinks were discussed and Nita said she would get Coke's or Pepsi's. Someone asked about Diet. There was a general show of hands and Nita said she would get diet drinks also. Everyone should bring desserts.

There was a discussion about whether we should be 1A or IIA. It was decided that Dennis would make a decision prior to Starting operations.

Paul, W6IAM discussed Safety. He emphasized the use of hard hats, gloves, fire extinguishers, etc. Paul also talked about generator grounding. Al, KD7TFK will have a first aid kit in his trailer.

Some items were announced for swap and trade. George K7TTY needs some 8 conductor cable. KE7XX has a nearly new cross needle power and vswr meter for $100.

Bob K6MBY reminded everyone of the code practice sessions on or about 7.052 at 10 AM on Fridays. Break in with your call at any speed to let them know you are listening.

The meeting was adjourned at 2045.

Bill Carter, Secretary, CCARC

Web News

The Club's new Web Site is online and pretty much complete. Be sure to change any bookmarks you have to the new pages at www.olyham.net. Olyham.com will still work, but all the old pages were named with the extension .html, and the new site is using .htm – so any old bookmarks will not work. Try one though, if you want to see our 404 – page not found!
I have received two or three positive comments about the re-design, and I am pretty happy with how it looks. I think it has a better organization, and a little brighter look. Nothing too fancy, though. What I would like is to have all the Club members explore the site and please let me know if there are any broken links, misinformation, or information that you would like to see added.
Be sure to check out the 2010 Field Day photos, and especially my video at the bottom of the page that shows the new tower going up in fast motion.
In addition to the new web site, I am working on the new bulk email process. It is not yet complete, but getting there. You may have noticed an email or two from ccarc@olyham.net, but if not, then please be sure to add that email address to your safe senders list so your spam blocker doesn't intercept it. A feature of the new bulk emailer is that you will have the option to unsubscribe, but if you do, you'll miss out on all the club news. Finally, be sure to let the membership chair know if your email addresses changes.
73 and happy surfing!

TAPR/ARRL Digital Conference

".....the ARRL is putting on their annual Digital Conference in Portland, OR, September 24 thru 26. This is an unusual opportunity for those of us on
the coast to connect with ham radio digital "heavy weights" from all over
the country. Here is the link for your information:
http://www.tapr.org/dcc.html". Topics include software defined radios, Digital voice such as Dstar, P25, WinDRM, digital satellite communications, APRS, DSP, HF digital modes and many more.
This is the premier ARRL digital Conference, usually held in far off (for us) places like Chicago or Arizona, so having it in our back yard is very unusual.
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EME Conference
14 International EME Conference
August 12-14th in Dallas, Texas. This is the premier EME event of the year. Topics such as low noise amplifiers, software defined radios and EME, Big Dish EME, EME Propagation, Software
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DX2010 Pacific Northwest DX Convention
Vancouver, BC July 30, 31 & Aug 01, 2010
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Hamfest
08/14/2010 The Radio Club of Tacoma
Location: Spanaway, WA
Type: ARRL Hamfest
Sponsor: The Radio Club of Tacoma
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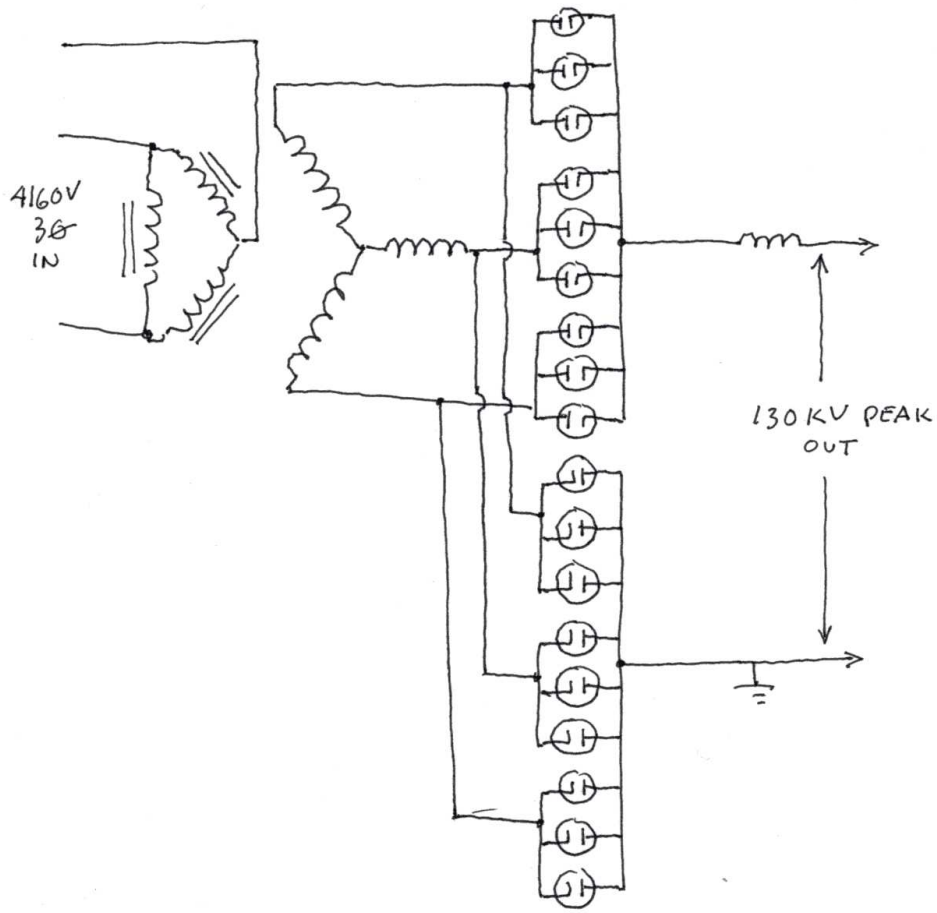
The Linear Accelerator, A technician's view

Part-4 High voltage pulser circuits

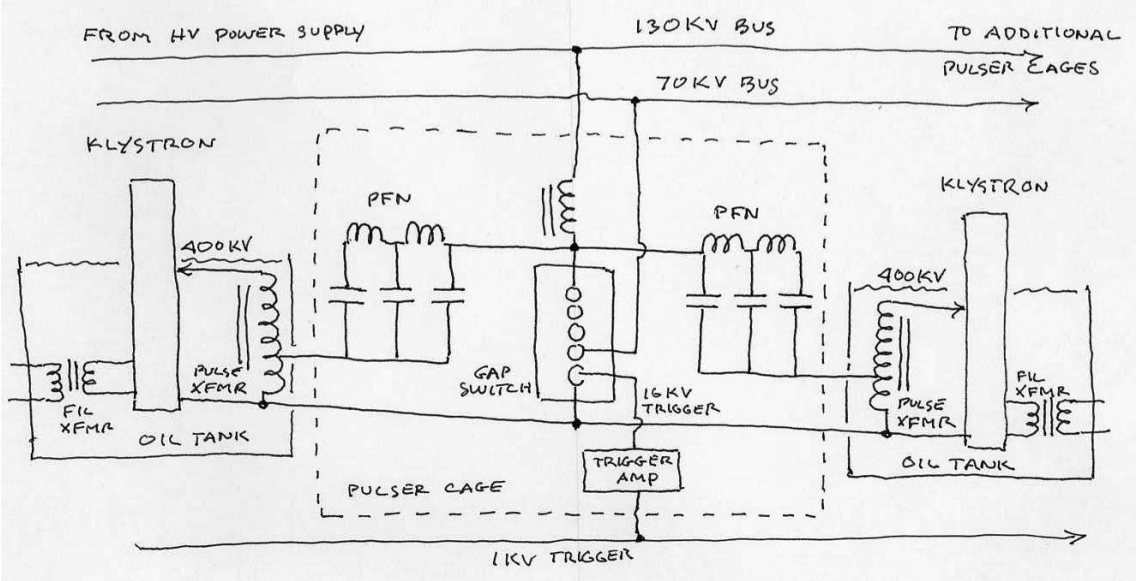
The klystron amplifiers for the Mk-III linear accelerator required enormous power to operate -- enough to light an average city but it was not continuous. It was pulsed at the rate of 2 microseconds every 60th of a second -- pretty low as duty cycles go. The primary power supply was simple but massive. Three phase 4160 VAC, was stepped up 8 times by three single phase 100 KVA transformers connected in a delta-wye configuration.



(Fig 4-1)

18 Machlett ML200 vacuum tube rectifiers were used in a full-wave configuration to provide 130 KV peak output. This was distributed to the Klystron pulse "cages" by an overhead bus that ran the length of the building. A second bus, parallel to the first, carried a 75 KV bias voltage for switching purposes.

The pulse cages were positioned between klystron pairs. . Each cage housed two pulse forming networks consisting of ten oil-filled capacitors, the kind you see in power substations, connected together by 12 inch diameter coils of copper tubing to make pulse-forming networks.



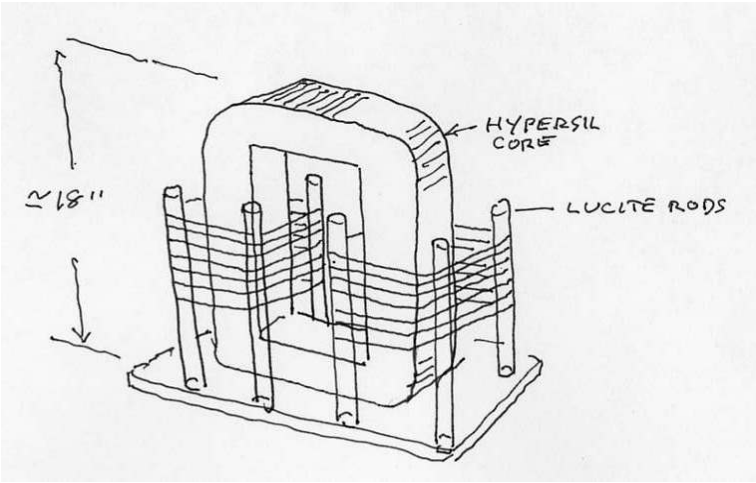
(Fig 4-2)

At each cage, voltage from the 130KV bus was routed through a charging choke to charge the network capacitors. At the proper time a trigger signal was amplified and used to fire a spark-gap switch to discharge the pulse forming network capacitors into 4:1 step-up transformers to provide 2-microsecond pulses of high voltage to the klystrons.

The gap switches were unique to the Mk-III accelerator. No other means were available to reliably switch such a high voltage. Each switch consisted of six 2" copper balls carefully spaced with feeler gages to just hold off the high voltage. Upon receipt of a trigger pulse, the first copper ball would arc to ground. The intent was that when this happened, the remaining air gaps between adjacent balls would be too small to hold off the 130KV and all the gaps would arc, discharging the PFN capacitors. It was important that the discharge take place within a window of 1/20th microsecond to ensure proper phasing of the RF waveforms.

No amount of experimentation would produce a reliable breakdown until someone thought to connect an intermediate bias voltage to another of the copper balls, It worked every time but, like any spark plug, frequent cleaning and readjustment was necessary. Eleven gap switches firing every 60th of a second sounded like so many cannons being fired at once. Sound-proof boxes couldn't completely eliminate the racket but they did reduce it to a tolerable level, and left no doubt that the machine was running!

So, we now had a 130KV, two microsecond pulse with good rise and fall times and a reasonably flat top. This was fed to a specially wound pulse transformer with a 4:1 step-up ratio, located in an oil tank along with a filament transformer and the cathode-end of the klystron tube..



(Fig 4-3)

Creating a transformer for 400 KV pulses turned out to be one of the biggest challenges. The compromise between voltage insulation and magnetic coupling proved to be difficult. The solution turned out to be a single-winding autoformer with a 4:1 ratio. It was made by winding bare copper wire on Lucite rods. The windings surrounded a laminated hypersil core. Even immersed in oil, there was a tendency for corona discharge and arcing. The transformers never did reach the level of reliability we wanted to see. I assume some progress has been made in the last 50 years.

So much for the "Readers Digest" version of the high voltage circuits. In the next installment, I'll discuss the vacuum system.

Paul Honore' W6IAM
Rev -2 June 2010

Power loss due to SWR

Overheard at field day was a discussion about SWR and the "horrible (a relative term) loss" of power if one had an antenna with a 3:1 SWR. Let's pick that statement apart a little for the sake of defining what the "horrible loss" really is.

Not wanting to get into a antenna tuner theory discussion here let's assume everyone will agree that a antenna tuner really does tune the antenna and that the transmitter is presented with a 50 ohm load (rather than the complex load that is at the antenna).

We know our discussion antenna has a complex load (inductive and capacitive reactance plus antenna radiation resistance) as we have a 3:1 SWR. Our tuner WILL tune the antenna by creating an equal but opposite capacitive and inductive reactance (you create this by tuning your capacitor and inductor in your tuner... you don't care about the numbers but just know you are tuning to create an opposite capacitance and inductance reactance) and the transmitter is happy to see a 50 ohm load presented by the tuner after you have tuned out the stuff the transmitter does not want to see. ALL our power from the transmitter must go some

(continued from page 8)

where and in our case with the antenna tuned by the tuner, it ALL goes toward the antenna. Yes, some of it comes back due to the antenna SWR but even that reflected power is turned around at the tuner and goes back to the antenna. (There is an ongoing discussion in the ham community about this scenario and I expect there will be disagreement with what a tuner does and if the reflected power is really turned around and goes back to the antenna.)

So, assuming, however, we can agree with the tuner discussion, our real loss then is due to the predetermined cable loss plus a cable loss caused by the SWR. The cable SWR loss we are talking about here is different in each cable type (Cable type meaning RG8X, RG213, LMR400, etc.), the frequency of operation, and the coax cable length.

As and example: Using 100 feet of RG8X at 3.5 MHz with a power out of 100 watts and a 3:1 SWR we have two losses at play. One hundred feet of RG8X at 3.5 MHz has a loss of .523 dB. (All coax cables have published tables showing loss per 100 feet at specific frequencies) If our antenna had a perfect 1:1 SWR the only loss would be the published cable loss of 11.36 watts (.523 dB) and our power to the antenna would be 88.6 watts. (Moral of the story here is to keep your coax runs short.) The cable SWR loss causes another 5.9 watts (.299 dB) of loss for a total of .823 dB or a total power loss of 17.26 watts. The 3:1 SWR caused an additional cable loss of 5.9 watts. We have just defined, in this case, our "horrible loss" as 5.9 watts due to a 3:1 SWR.

Let's assume a larger, less cable loss, piece of coax like RG213. Same story, 100 feet of RG213 at 3.5 MHz with a power out of 100 watts and a 3:1 SWR we have the same two losses at play. One hundred feet of RG213 at 3.5 MHz has a loss of .363 dB. If our antenna had a perfect 1:1 SWR the only loss would be the cable loss of 8.02 watts (.523 dB) and our power to the antenna would be 91.98 watts. The cable SWR causes another 4.3 watts (.21 dB) of loss for a total of .58 dB or 12.51 watts lost. The 3:1 cable SWR loss cost us another 4.3 watts.

Just to show how much of a roll the frequency has play, let's try the same RG8X at 28 MHz. One hundred feet of RG8X at 28 MHz has a loss of 1.58 dB or 30.56 watts. Ouch, we have lost 30.56 watts and we just got to the antenna. The cable SWR causes another 10.21 watts of "horrible loss" (.691 dB) for a total loss of 40.77 watts. The real power to the antenna is 59.22 watts. We have lost 30 watts just due to cable loss and only 10 watts due to cable SWR loss.

Many hams use ladder line in lieu of coax. Let's do an example of the 28 MHz antenna using ladder line. One hundred feet of Wireman 552 ladder line at 28 MHz has a loss of .29 dB or 6.6 watts. That is 6.6 watts lost in the ladder line vs 30.56 watts lost using RG213. The 3:1 SWR causes another 3.8 watts (.182 dB) of loss for a total loss of 10.45 watts. The real power to the antenna is 89.54 watts. Using ladder line in this example we have gained back 20 watts.

All these figures came from http://www.ocarc.ca/coax.htm. Check the page out and plug in your own station numbers. Assuming you have a tuner and you are tuning the antenna, a SWR of 3:1 is not a horrible thing.

Discussion anyone???

Bob
K6MBY

Club Committees

Technical Co-Chairs:	Bob Sampson, K6MBY Steve Debiddle, W6MPD
Membership Chair:	Valerie Hannon KF7VAL
Activity Chair:	Callie Kroll N7YMU
Program Co-Chair:	Janet Parris WA7JEP, Bill Carter W7WEC, Chuck Jones N7BV
Field Day Co-Chairs:	Dennis Tilton, AD7TV Al Fisk KD7TFK
PIO Chair:	Becky Winters W7RJW
Net Coordinator:	Becky Winters W7RJW
Health and Welfare:	Chuck Jones N7BV, Rich Golding N7NCN
Web Site:	Rik Scairpon, WX7RIK, David Hannon KE7TTT, Bob Sampson K6MBY, Al Popowski W7ALP

What's Happening at Ellis?

A "good as it is going to get" lease with Century Link Telephone has been forwarded to the board for approval.

ANTIQUE RADIO SWAP MEET

The Puget Sound Antique Radio Association will hold its 28th annual swap meet on Sunday, August 15, 2010 in the North Seattle/Shoreline area. This community event, the largest of its kind in the Northwest, attracts collectors from California to Canada. The public is encouraged to bring old radios of their own that they wish to sell. Sellers can tailgate or bring their own table. Admission is free there is no charge to buyers or sellers. A $5.00 donation is recommended for sellers.

Information on radio restoration and repair services will also be available to aid collectors in returning their old sets to their original condition.

The Swap Meet will take place from 9:00 AM to 1:00 PM in the Shoreline Museum parking lot, North 175th and Linden Avenue North, just west of Aurora Avenue.

A large exhibit of antique radios and related items will be on display in the museum during the Swap Meet. This collection has been assembled and maintained by The Puget Sound Antique Radio Association, a non profit group dedicated to the preservation and appreciation of these vintage sets. Membership information will be available at the Swap Meet.

For more information, please visit our Web site at http://www.eskimo.com/~hhagen/psara/index.html
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Thank you.

Norman L. Gilinsky, Vice President
Puget Sound Antique Radio Association

PROGRAM FOR July 14

TBD.

Clallam County Amateur Radio Emergency Service (CCARES)

The Clallam County ARES is organized in two levels; as an affiliate of ARRL/ARES and as the recognized RACES organization by the Clallam County Division of Emergency Management. Membership in CCARES is open to all licensed Amateur Radio Operators that are residents of Clallam County, who first register with ARRL/ ARES through the Emergency Coordinator. They are not required to attend training meetings and function as a second response unit in emergencies.

CCARES members in good standing may register in the RACES program with the Clallam County Division of Emergency Management (CCEM) and serve as a primary responder during emergencies. RACES members are the core of the organization and are expected to attend training meetings and participate in drills and other events.

FOR SALE OR TRADE

For Sale

Heath Kit Antenna Tuner-----$50
Swan Cygnet Xceiver--------$50
Cleg FM-27B 2mtr Xceiver---$30
Knight Kit Tube Tester-------$40
PowerStat L21C----------$30
AutoXformer 0-140V 4.5A- $30
Knight Kit KG-650 Sig. Gen-$40
Drake TR-4 Xceiver---------$50
Jim WA7LDM 457-9299

Tower

47 foot tower riangular in shape, 5 sections, one foot on a side. Nothing else is known. The owner got it from a neighbor who was going to dispose of it. I will get anyone interested in looking at it in touch with the present owner.

Call Tom Newcomb for information; Phone 452-8228. Price negotiable.

FROM OUR TREASURER:

First Federal Savings & Loan of Port Angeles Balance: $ 8,186.76
Outstanding Cheques: - 0.00
Checkbook Balance: $ 8,186.76

BIRTHDAYS:

Birthdays for July, 2010 and the first week of August, 2010:

Acorn, William G. KF7BCY Jul-03
Lyman, Nita KE7DRT Jul-03
Sampont, Gerald M. WA7BUY Jul-03
Llewellyn, George A. KF7JQS Jul-04
Wilson, Doreen J. KL1HG Jul-04
Coffel, Floyd J. (John) KE7RFO Jul-05
Newcomb, Shirley KC7ZQA Jul-05
Kroll, Callie E. N7YMU Jul-09
Hannon, David H. KE7TTT Jul-10
Van Nimwegen, Johan KO6I Jul-19
Benadum, Paul WB8BVK Jul-23
Luchini, David L.KE7WGR Jul-23
Fontaine Jr., Claude (Ralph) AF7DX Aug-04

YL Birthdays for the same period

Hannon, Valerie A. KF7VAL Jul-10
Kagan, Onida (Jerry P, W7JRY) Jul-19
Erickson, Priscilla (Scott R, KL2BG) Jul-23
Dawson, Maureen (Al, W7YLV) Jul-31
Fontaine, Maureen KH6MF Aug-04
Baguley, Mrs. Michael (KE7RFP) Aug-06

Happy Birthday!

Please welcome the following new members who joined the CC-ARC recently!

Mack, Dennis O. KE7CXL

Metz, Robert L. & Pamela KF7JQV

NEXT YL LUNCHEON
Tarcisios, Sequim
August 13th

Time: 11:45 a.m.

***Find us on the web* at www.olyham.com Check it out. Lots of information about ham radio in Clallam County!**

2010 YL Luncheons:

2010 - CCARC Ladies Luncheon Schedule
Reservations are made for 11:30 - 2nd Friday of each month

January -Bushwhacker - 1527 East 1st St. - Port Angeles
February - Old Mill Cafe - 721 Carlsborg Rd. - Carlsborg
March - Gordy's Pasta and Pizza - 1123 E. 1st - Port Angeles
April - Oak Table - 292 W. Bell - Sequim
May - Downriggers - 115 E. Railroad Ave. - Port Angeles
June - Mariner - 707 E. Washington - Sequim
July - Toga's - 122 W. Lauridsen Blvd. - Port Angeles
August - Tarcisios - 609 W. Washington - Sequim

Description	Time/Date	Location	Contact
Clallam County ARES/RACES meeting	7 pm, first Tue of every month	Clallam County Courthouse EOC, 223 E. 4th St., PA	Dan Abbott N7DWA 360-582-3824
Clallam County Amateur Radio Club general meeting	7 pm, second Wed of every month	Olympic Hospital Linkletter Room, PA	Tom Newcomb KE7XX 360-452-8228
Clallam County Amateur Radio Club social breakfast	8 am, first Sat of every month	Joshua's Restaurant Hwy. 101 & Del Guzzi Dr.	Tom Newcomb KE7XX 360-452-8228
Clallam Country Amateur Radio Club YL social lunch	11:45 am 2d Fri of every month	Rotates - announced on Thursday night Net	

CLUB OFFICERS For 2010

President: Nita Lyman KE7DRT 360-457-5022 Nita_lyman@yahoo.com

Vice President: Dennis Tilton AD7TV 360-452-1217 3tiltons@wavecable.com

Secretary: Bill Carter W7WEC 360-6814375 w7wec@arrl.net

Treasurer: David McCoy KE7JEJ 360-457-8550 mccoy.d.r@olypen.com

***Board Member* (Chairman):** Johan Van Nimwegen KO6I 360-681-7300 jvn@olypen.com

***Board Member*:** Al Dawson W7YLV 360-457-0752 adawson@tfon.com

***Board Member*:** Chuck Jones N7BV 360-452-4672 N7BV@yahoo.com