

The READOUT

Year 13

Number 3

March 1991

Tech' Report

The repeater repairs and revamping are coming along nicely. The portion of the patch that will go to Steve's house is complete and the uplink receiver is just about complete. I've had several receivers here that I planned to use whichever one turned out to be the best. Just about all turned out to be dogs and needed preamps to make them decent. I finally found one that seems to be pretty good and I'm installing the PL decoder now.

The 440 MHz repeater is at Bill's, WA6OHP, where he is putting it together and tuning it for us. My thanks to Bill on that one. The new two meter repeater hasn't arrived yet but is due soon. I hope it arrives soon along with the 440 repeater so I can have as much as possible completed before I start making trips up the mountain to install the equipment.

It is far better to do most of the work here as parts are much more available and there's no Radio Shack on the hill. We do need to buy a new large power supply so everything can run from one supply. The controller uses CMOS technology and one of the parameters of CMOS is that the input voltage never exceed the supply voltage. With many

See 'Tech Report' Page 6

National Bureau of Standards WWV

The National Institute of Standards and Technology operate stations WWV and WWVH which broadcast the time of day and standard time intervals, maritime storm information, omega reports and geophysical alerts. Both broadcast in AM (Double Sideband) with 10 kW on 2.5, 10 and 15 MHz. Additionally, WWV, also transmits on 20 MHz.

WWV is located at Fort Collins, Colorado, and WWVH is located in Kauai, Hawaii. All of WWV's antennas are omni-directional half-wave dipoles, while WWVH has half-wave phased verticals with a cardioid pattern aimed at the west. WWV's announcer is a male while WWVH's announcer is female.

On WWV, there's no tick on the 29th and 59th seconds; on WWVH, it's silent at seconds 00 and 30. Both stations broadcast a 440 Hz tone (the musical note 'A' above 'middle C', for chart recorders and other

automated devices, once each hour ..on WWV at 3 minutes past the hour and on WWVH at 1 minute past the hour.

For propagation forecasts, hams can use the geo-alerts broadcast from WWV only at 18 minutes past each hour and updated every three hours at 0000, 0300, etc. These alerts contain information on the solar flux index measured daily at 1700 UTC in Ottawa, Canada; and the current K-index (disturbance of the earth's magnetic field) along with past and predicted 24-hour activity.

If you can't receive WWV on your rig, you can call (303) 499-7111 anytime and hear the same information on the phone. For more information on WWV and WWVH, you may write to the National Institute of Standards and Technology, 2000 East County Road 58, Fort Collins, Colorado 80542.

You're Invited!
Next SARA Meeting
March 19, 1991 730 pm
County Administration Bldg.
12th and H Streets
Downtown Modesto

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1991 SARA Officers

President

Oliver Borns KJ6YZ 551-5855

Vice President

David Grout, N6YHZ 576-8730

Secretary

Linda Franklin N6REB

Treasurer

AL Dionizio N6SAE 523-4485

SARA VHF Net

Thursdays @ 8 p.m. (Except
Holidays)

2 meters 145.39 MHz WD6EJF

220 Band 223.68 MHz WD6EJF

10 Meter 28,440 kHz USB

Tuesdays at 730 pm.

Contributions to *The READOUT* are always welcome and may be submitted to the editor by mail or via packet at N6REB-BBS on 145.79 MHz. The deadline for articles is the 15th of the preceding month. Articles regarding religion or politics are not accepted.

Editor

Bob Pinheiro, WA6ZLO

1221 Mist Flower Ct.

Modesto, CA. 95355

209-523-5880

An ARRL affiliated club !

ARRL membership may be paid through SARA with the club retaining a \$2.00 commission. Please send your ARRL membership form along with your check made payable to "SARA". We will deduct the \$2.00 and send a check to the ARRL.

Warning About NiCad Batteries

Ed note: The following product safety bulletin was issued by the Streamlight Flashlight Co. of Norristown, PA, makers of high powered police type flashlights. Although specifically addressing flashlight batteries, it also applies to Amateur radios that depend on nickel-cadmium battery packs (NICADS). If you want more information on this subject to may call Streamlight at 800-523-7488 or write to them at 1030 West Germantown Pike, Norristown, PA 19403.

There are special considerations to note when using multi-cell rechargeable nickel-cadmium batteries, such as those found in certain flashlights. If a nickel-cadmium battery is subject to repeated and extensive overdeep discharges, such as an aggressive conditioning procedure to eliminate "memory," which runs the battery down completely on a regular basis, it can experience a voltage reversal of one of the five cells. This can cause a build up of pressure inside the cell which could lead to venting of the electrolyte, cell damage and early battery failure.

In addition, should the pressure relief vent on the top of the battery stick become damaged, this pressure build up could lead to the cell's bursting and possible injury.

To obtain the safest and longest service from your rechargeable products, Streamlight, Inc., in conjunction with the leading manufacturers of nickel-cadmium batteries, offers the following recommendations:

1. Do not over discharge nickel-cadmium batteries. Never leave the flashlight on once the lamp becomes dim. Discharging the battery past this point can damage it or shorten its life.

2. Do not periodically "condition" or "exercise" your flashlight battery despite what you may have been told about nickel-cadmium "memory." According to the most recent reports gained from the technical manuals of battery manufacturers, the actual existence of "memory" is extremely unlikely. A regular ritual of deep discharging is specifically not recommended, unnecessary and will greatly shorten battery and lamp life.

3. If the battery is over discharged there may be a small leakage of alkaline electrolyte from the safety vent area on top of the cell. It appears as a white powdery substance and can affect the integrity of the electrical contact. We recommend that our battery be periodically inspected and the contact area wiped clean should any evidence of electrolyte leakage be present. Use caution when handling a battery that has leaked. The electrolyte is a strong caustic and can burn or irritate the skin and eyes.

4. While inspecting the battery, take note of the condition of the positive terminal cap and the top cell. Some suppliers' batteries are subject to vent damage if this cap is dented, and the battery should be replaced or serviced. Please contact the Factory for help in identifying possible vent damage.

REMEMBER...Do not deep discharge nickel-cadmium batteries. Inspect your battery on a regular basis and replace damaged or failing batteries. Routine maintenance will enhance personal safety and flashlight performance.

- Source Streamlight, Inc.

February Minutes

By Linda Franklin, N6REB, Club Secretary

The February 19, 1991 SARA meeting was called to order at 7:37 pm by President Oliver KJ6YZ. Introductions were made by 27 members and guests. President KJ6YZ gave the list of topics on the evenings agenda to be discussed, then Treasurer Al N6SAE gave the following Treasurer's report: Jan. 15, 1991 General Fund account balance was \$1,637.13. Four credits were received totaling \$639.73 and eight debits totaling \$413.24 bringing the General Fund Account balance to \$1,863.62 as of Feb. 19, 1991. The Jan. 15, 1991 Fund Raiser Account balance was \$419.55 with one credit of \$19.00 and one debit of \$49.98 bringing the Fund Raiser Account balance to \$388.57 as of Feb. 19, 1991. The Educational Account balance for Dec. 31, 1990 was \$622.65 with 5 debits totaling \$239.32 bringing the Educational Fund balance to \$383.33 as of Feb. 19, 1991. A motion was made and seconded to accept the Treasurer's report as read. The motion carried.

A motion was made to accept the minutes of the Jan. 1991 meeting as printed in The READOUT. The motion was seconded and carried. Vice President,

Dave N6YHZ, read a letter sent to SARA from Mr. Steven Jacquier of Sitka, Alaska, in which he expressed his thanks to SARA and WDOFFX for holding ham radio classes. While visiting this area last summer he attend a class and passed the novice written portion, and is planning to complete the code portion in Alaska.

VP N6YHZ, also brought up the fact that there was no Field Day participation by SARA as a club last year and several hams expressed they feel it is an important event. N6YHZ also stated the need to start preparations now as June isn't that far away. WDOFFX related that Dave KJ6DL would look into the availability of a Field Day site if there was a certainty the SARA club was participating in the event this year. Also KJ6DL feels attendance of The Field Day event by the new Novices, Tech's and no code Technicians would create an interest for them to learn the code and upgrade their speed to try for the Plaque the club purchased for the Novice or Technician that made the most 10 meter contacts in a one month period.

Secretary N6REB, read a letter from Jim, N6KMR, in which he donated to SARA the Uniden 2600 and MFJ 127B 10 meter digi equipment to be used on 28.103 for club use and associated activities.

WDOFFX raised a question as to how often the WD6EJF-1 2 meter digi was being used. Also if it could be monitored over a period of time for this. He suggested if

it is sitting idle most of the time, it could be converted to something more useful. N6REB said she would keep a check to see how often WD6EJF-1 was used to access the BBS. Possibilities of converting the 2 meter digi to a node was also mentioned.

LeRoy NV6S gave an update on the repeater equipment. He and Bill, WA6OH,P were still working on it, basically all equipment is performing except the 440 repeater. He is in the process of getting it mounted and ready to go up on the mountain. The borrowed duplexers are not tuning properly. They may be able to get it on the air, but it won't perform well with the borrowed duplexers and we need to purchase our own. LeRoy reported he received a call from the UHF coordinator just this evening, advising someone is trying to sit on our 440 pair. The party is already on the air but the coordinator has refused to sanction him until we get on the air ASAP.

NV6S said a new duplexer would cost \$850.00. Hart, N6TIV, mentioned the possibility of a club member making a loan to SARA to purchase the new pair of duplexers with terms to pay it back. KJ6YZ said with \$388.57 in the Fund Raiser Account, the amount any anonymous party would wish to loan the club to speed up getting the equipment on the hill would be approximately \$300.00. Larry, WB6GJT, suggested the discussion on the loan be tabled as the matter may be resolved before the end of the meeting.

NV6S reported the 10 meter digi has been shut down at the present time as it's going from 20 over 9 to S6 for no apparent reason. He intends to check it out when he goes back up the hill. The autopatch is at his house being worked on and he would like to have the rest of the equipment together before he takes it up the mountain. He would like to get as much interfacing done at home as there is a lot of time involved in getting there and back to work on it.

President, KJ6YZ, reported he and Steve, N6EKV, are going to get together to set up SARA's participation in the fireworks booths as a fund raiser again this year. N6REB, then read a report, sent by Ernie, K6UVI, who was unable to attend, on the information he had obtained on prices, models and features of color tv's. This endeavor was to locate the best deal for having a color tv as a prize vs. cash in another fund raising raffle. NV6S said he would

See 'Minutes' page 4

Editor's Notes

By Bob Pinheiro, WA6ZLO

On February 14, 1991 the new No-Code Technician license became available. It appears that the interest in this class of license is high. Statistics from a two VE test sessions conducted by the Sunnyvale VE group shortly after the 14th indicate that 36 applicants took the new NO-CODE license test. The age of the applicants ranged from 19 to 78 years.

- The FCC has set March 16th, 1991 for the effective date of the Novice-Technician sub-band 80 meters move. The band will change from the present 3700-3750 kHz to 3675-3725 kHz. The change was made to reduce the interference to American operators from foreign stations. The power restriction for of 200 watts in this sub-band remains the same. In other FCC actions, a Notice of Inquiry was issued on February 13, 1991 into preemption of state and local laws for transceivers which are capable of receiving beyond Amateur frequencies. The Commission is seeking more information especially on the technical and financial feasibility of modifying existing transceivers to remove the capability to receive police or other public safety channels.

- The population of American Amateur radio operators has passed the half million mark for the first time in history. FCC statistics put the number at 500,243 nationwide of which 53,836 are Extras. 105,309 Advanced; 119,796 Generals; 127,427 Technicians and 93,875 Novices.

- The ARRL Pacific Division convention will be held again in San Jose. Pacifcon '91 dates are Sept. 27-29, 1991. The Fresno Hamfest is May 3-5, 1991 at the Airport Holiday Inn in Fresno. The International DX Convention will be held again in Visalia on April 12-14, 1991.

- Charter SARA member Jim Smith, KB6DJ, has pulled up stakes, packed his bags and moved to Grants Pass, Oregon where he has bought his retirement home. Good Luck Jim! Welcome back to California Ernie, K6UVI, who has settled in Modesto with his wife Rita. Ernie lived in Springfield, Oregon while he attended classes at the University of Oregon.

- The following Amateur radio calls signs issued in the 6th call district as of January 1991. Extra-AB6AN. Advanced-KK6VH. General-Technicians and Novices KC6QQB.

- The popular Foothill College Flea Markets will be held the 2nd Saturday of each month beginning March 9th and continuing through September. The Livermore Swap

Meet is held the first Sunday of each month at the Las Positas College in Livermore from 7am to 12 noon.

- Apple Computers Inc. has petitioned the FCC to use radio frequencies for computer transmissions (packets?). The wireless computer linkups would supplement wired networks now in place which typically consists of telephone lines, coaxial cables and fiber optics. Apple says that approval of the request would establish the next generation of personal computers. One example cited was the classroom. With wireless computers transmitting data over the airwaves, students and teachers would no longer be confined to a hardwired setup.

- We are sorry to report the death of Stan Kraan, W6TFE, of Barstow. Stan was well known to our repeater and was heard mobile from his 18 wheeler as he passed through this area. Stan died of Cancer last month at a Barstow hospital after a short illness.

- You've heard of smart homes and smart cars, now there's a smart toilet. Going to the hospital for routine health checks can be very costly and time consuming. Now, the Japanese have developed a "Health Control Toilet System" which allows people to run simple test in the privacy and convenience of their own homes. Test paper is attached to the toilet and a sensor measures the amount of glucose, protein, urobilinogen and blood in a urine sample. The intelligent toilet system also features a sphygmomanometer to measure blood pressure and pulse rate. What won't they think of next. That's it for this month. 73, Bob.

'Minutes'

From page 3

also check with a good source for obtaining the color tv. Also discussed was the possibility of having a dance this year with the donated services of new SARA member, KC6QMU, as DJ.

A break was taken at 8:35 with the meeting resuming at 8:45. The evenings raffle was then held with Mark, WB6BJM, receiving a Yaesu external speaker.

The meeting was adjourned at 8:55 pm. Respectfully submitted by Secretary N6REB.

From the SARA Mailbag

January 10, 1991

Dear S.A.R.A.

This brief note is simply to thank the Stanislaus Amateur Radio Association for sponsoring classes preparing individuals for the FCC Novice shortwave radio operator certification examination.

While I was in the Modesto area last summer I attended a S.A.R.A. class instructed by Mr. Phil Hartz and successfully passed the theory portion of the certification exams.

The course was as enjoyable as it was instructive, and was excellent preparation for the exam. Following Mr. Hartz's suggestions I am currently practicing a little bit of Morse code every day, and will take the other portion of my exams up here in Alaska to obtain a Novice permit.

The usefulness of shortwave is readily apparent here in Alaska. I will be listening for the familiar call-signs from Modesto when I am certified and on the air.

It is clear to me, given how many years I have said that I wanted to do this but how long it has actually taken to come together, that without the convenient and affordable class offered by S.A.R.A. last summer I would probably still just be thinking about it instead of well on my way to becoming certified.

The class de-mystifies much of the formidable-seeming theory, rendering it understandable, and provides a practical structure for getting up to speed with the Morse.

Again, my thanks to the Stanislaus Amateur Radio Association and to Mr. Phil Hartz for holding the Novice exam class.

Sincerely,

*/s/ Steven Jacquier
Sitka, Alaska*

(Editor's Note: Thanks Steve for your nice letter which was passed on to Phil Hartz. SARA is proud of our Education Committee which is headed by Phil. It has graduated many new Amateurs over the last several years. We are sending you a complimentary copy of *The READOUT*. We hope you enjoy it! Good luck and continued success in upgrading your license. We will look for you on the air.)

CHP Moves To Mobile High-Tech Computers

The CHP is moving into the world of high-tech with hand-held computers that will allow their officers to print out instant traffic tickets and eventually let motorists pay fines on the spot with credit cards. The CHP is spending \$60,000 for the pilot program which started in November and will be tested in Ventura County.

This is the first program of its kind in the nation and if successful, will be expanded throughout the state. The aim of the program is to cut down the amount of time and paperwork required to process handwritten tickets. The officers will also carry portable printers to print out the tickets on the spot.

The hand-helds are basically miniature packet terminals that will also be able to access state computers for drivers license and registration information and eventually be tied into the National Crime Information Center Computer at the FBI office in Washington, D.C. where wanted persons information is stored.

The CHP hopes that within 5 years, the computer system in each patrol car will be able to accept credit cards from motorists who decide to post bail on the spot without leaving their cars. It now takes as much as a month for motorists to get their court notices and the computer is expected to reduce that time to within 24 hours.

Local 1991 VE Exams

DATE	LOCATION	TIME	COMMENTS
April 13, 1991	Sonora	9:00 AM	ALL CLASSES
May 18, 1991	Turlock	9:00 AM	NOV-TECH ONLY
June 1, 1991	Modesto	9:00 AM	ALL CLASSES
Sept 7, 1991	Modesto	9:00 AM	ALL CLASSES
Nov 16, 1991	Sonora	9:00 AM	ALL CLASSES
Dec 7, 1991	Modesto	9:00 AM	ALL CLASSES

For more information call W6XK 209-883-2968

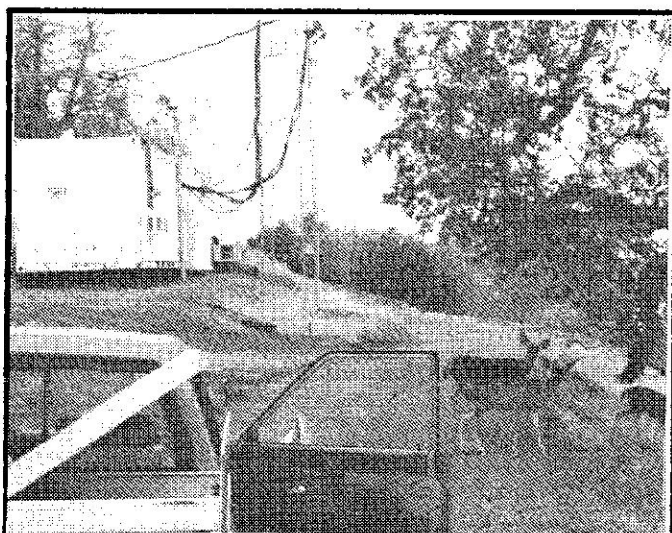
Did You Know....

The peak years for CB radio were 1974 to 1976 when approximately 12 million CB sets were sold per year. From 1977 through 1982 the FCC issued some 25 million CB licenses. During boom years there were over 40 publications in print serving the CB community. Today, as far as we know, only CB magazine remains.

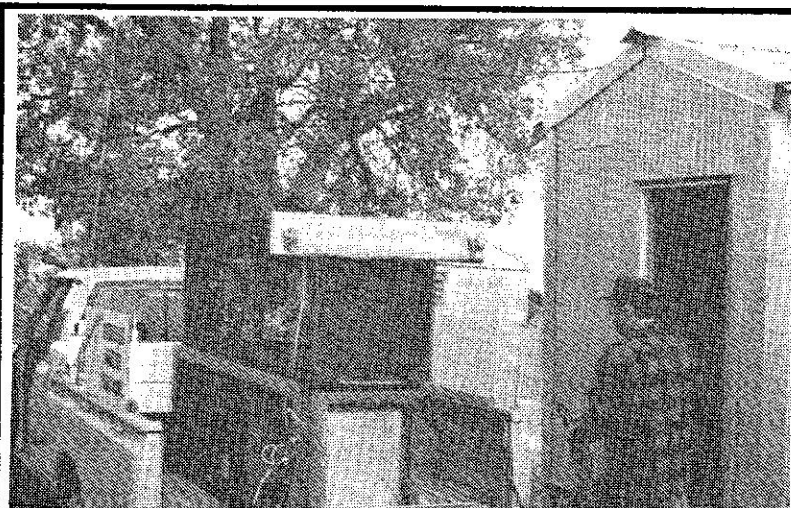
Tech' Report

different supplies that is a questionable situation. A new battery is also in order since the existing one is several years old. We also need to buy a new set of duplexers for the new 440 repeater so we can give the set that are on loan back to the owner as soon as possible. Anyway we should have a great system once it is all installed and the bugs are worked out. Grady,

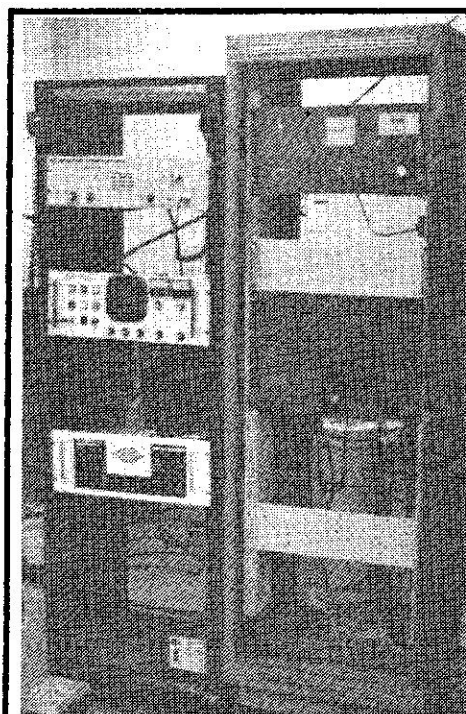
K6IXA, will take a trip up the hill with me and attempt to locate the interference that has been plaguing the 220 machine. That may not be an easy fix. There seems to be something drifting around the input frequency and it is pretty strong. I thank everyone for their patience while I get the system running properly. 73 LeRoy.



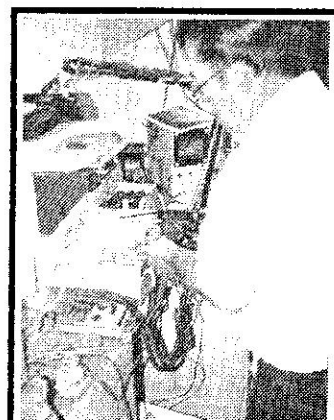
Tom, N6LSA & NV6S had some curious visitors wander by while they were unloading equipment on Mt. Oso.



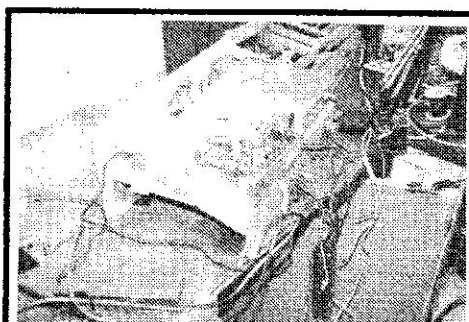
Equipment on NV6S's pickup outside the two meter vault.



Dual equipment racks bolted together house the club's 220, 2M and 2M back repeaters, autopatch and power supplies. The duplexers are on the floor behind the rack.



NV6S at work.



2M standby repeater repairs.

Important Facts & Tips About Coax

Many antenna installations quit working after about two years of use. Blame the coax?? More likely the problem is at the antenna connection point which deteriorates because it was left unprotected from the elements. The best coax sealant is called "Coax Seal" at about \$2.50 a roll, and available at all amateur radio stores. It goes on like silly putty and never hardens. It must be cool when applied or it will stick to your hands and make a real mess. Let's look at some coax specs:

Type	dB loss
RG58/U	10.0
RG8X	8.0
RG8-MX	8.2
RG8/U	4.2
RG-213	4.7
9913	2.6

The dB loss (shown per 100 ft at 400 MHz) characteristics are important to insure that your transmitted power ultimately makes it to your antenna. That dB loss works in the other direction also! Although you may think you could live with a long run of coax and a half reduction (for each 3 dB) in output power, remember that all incoming weak signals will be similarly diminished. It works both ways.

The type of jacket, shown in the second column, is important in any exposed outdoor installations. The Type II is PVC and specifically suited for sunlight exposure without deteriorating. Type II also uses a solid dielectric that surrounds the center conductor, rather than foam. Foam dielectric is not acceptable in exposed environ-

ments because moisture quickly invades and ruins the otherwise excellent dry weather characteristics. The percentage of braid and center conductor size are also important. Cheap coax skimps on both counts. For short runs (under 30') RG8-MX is recommended. It is hard to find except at selected marine stores. Don't take the RG8X since it has a foam core. For longer runs RG-213 from Belden is the best choice. All the better ham stores carry this type.

Be especially wary of the hobby radio store's grade of RG8/U. For runs at 1296 MHz, go for the Belden 9913 which is easier to work than hard line, but still has decent characteristics. Good coax and proper feedpoint protection will insure a long-lasting installation. The trouble it takes to do the job twice is far greater than the extra cost of good materials.



IF YOUR BOYFRIEND IS A HAM, THIS FRAGRANCE WILL REALLY GET HIS ATTENTION --- IT'S CALLED "BURNING BAKELITE!"

Altamount Winds Generate Electricity

We have all driven over Altamount Pass going to the bay area. The hot central valley summers create air currents that play havoc with large trucks and RV's. Wind speeds average 16-28 miles per hour during the months of May through August. Winter months bring speeds of 9-15 mph.

However, man has put the wind to work by installing wind turbines covering 47 square miles in the Altamount hills...an area about the size of San Francisco. The turbines produce 60-70% of their power during the summer months with the electricity generated from each 4-acre

site going to a pad-mount transformer. An on-site substation collects the windfarm power and ties directly into the nearby PG&E Coast Mountains transmission lines.

Altamount Pass turbines range in size from 40 to 750 KW with rotor diameters as large as 149 feet. Over 7,000 turbines, representing 20 manufacturers, have been installed since 1981.

Over 2 billion kilowatt-hours have been generated. This is enough energy to meet the electrical needs of about 200,000 metro Sacramento homes, as well as its TV and radio stations, for a full year.

Calendar

Mar. 9, 1991 ... Foothill Flea Market All Day
Foothill College in Los Altos

Mar. 19, 1991 .. SARA Monthly Meeting 730 pm

Apr. 13, 1991 .. VE Testing Sonora 900 am

Apr. 16, 1991 .. SARA Monthly Meeting 900 am

May 3-5, 1991 .. Fresno Hamfest 3 Days
Airport Holiday Inn

May 18, 1991 .. VE Testing Turlock 900 am

Aug 3, 1991 ... Reno Hamfest All Day

SARA meets the thrid Tuesday of each month (except holidays) at the Stanislaus County Administration Building at 12th and H streets in downtown Modesto. The meetings are held in the lower-level conference room starting at 730 pm. Visitors and interested parties are most welcome. SARA is an ARRL Affiliated Club and is affiliated with Stanislaus County and City of Modesto RACES. Repeaters WD6EJF operated on 145.39 MHz and 223.68 MHz. Informational nets are held each Thursday evening at 800 pm.

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**The Next SARA Meeting is March 19,
1991 at 730 pm. You're Invited!**