



founded 1970

THE BULLSHEET

Official News Bulletin of the
Texas DX Society
An ARRL Affiliated Club



Sept. 1987
Volume XI
Number 9

TDXS Officers

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TO: FULL MEMBERS, TDXS

FROM: SECRETARY, TDXS

SUBJECT: NOMINATION OF '88 OFFICERS

Well folks, it is that time of year again. Time to start thinking who you would like to have as officers next year. The TDXS Constitution states that nominations shall begin at the September meeting and conclude at the end of the October business meeting.

This year's Board of Directors WILL NOT make any nominations as has taken place the last couple of years. It has been evident those members who were nominated by the Board ran virtually unopposed. It was felt by the present Board, this year's nominations should come from the membership.

Remember to ask the member who you would like to nominate if he or she wants the position before nominating them. Take time and give it some thought.

73,
Ken

THE DRYHOLE ANTENNA
de K2TNO

The collapse of the world petroleum market has hit hard here in Texas. Fortunately, not everything is bad --- unbeknownst to the now-destitute drilling wildcatters, they have created a golden opportunity for hams. Why? Because much of the U.S. (and other countries) is punctured by thousands of abandoned oil wells. A lot of these are what is known as "stripper" wells, holes that only produce about a barrel of oil a day, even with advanced recovery methods.

Today, these wells are not economical to operate. But each consists of a hole thousands of feet deep, and about six inches in diameter lined with steel well casing pipe. This construction prompted the writer to investigate possible uses of these wells for ham radio purposes.

A little thought revealed that such a hole ought to be a perfect location for an image-plane Beverage antenna (1). Since the hole is vertical into the ground, the resulting image antenna will be vertical above the ground, thereby providing low-angle reception. Furthermore, the near-field electrical environment of the hole is below ground, providing excellent shielding from atmospheric and man-made noise. Just as a normal (above-ground) antenna is dependent upon the characteristics of the earth below it, so too the DRYHOLE antenna system's image antenna will reflect the shielding characteristics of the below-ground component.

To recapitulate, the above-ground image antenna will appear electrically to be a vertical shielded electrostatically from stray radiation by the image of the hole around it. The electronics of holes is beyond the scope of this article (2).

Because only the image antenna is above ground, the antenna (of course) requires no supports and is invisible. See Figure 1.

FEED-POINT COUPLING

The only critical point of the antenna installation lies in the feedline assembly. In order to feed power to the image (i.e., above-ground) portion of the antenna, the coax line from the shack must be attached as shown in Figure 2.

The idea here is to invert the RF path, by connecting the coax center conductor to the well casing and the shield to the image antenna terminal as shown. This arrangement is, of course, exactly the opposite hookup to that used if a regular above-ground vertical were in use. We tend to forget that the desired RF signal on the coax braid is actually only on the inside surface of the braid. Antenna currents flowing on the outer surface constitute standing waves, and are typically removed by use of a ferrite RF choke. A few ferrite toroids ($A_L = 800$) slipped over the coax work nicely, for powers up to about 3-5 KW. Above that level, an air-wound RF choke is recommended.

When connected as shown, the hot (center) lead feeds the well casing and the reverse complement of the RF signal feeds the image antenna. The resultant E and H-plane fields thus are also inverted and the power is delivered to the above-ground (imaging component) antenna. Since the SWR is close to 1:1, no additional matching or tuning is required.

CONSTRUCTION DETAILS

The image-plane Beverage consists of a wire of length L_1 cut to be an exact multiple of one wavelength at the lowest desired operating frequency. It is held in the pipe by a lead weight at the end, and terminates in the matching network described below. Since the well hole is vertical, the antenna does not need to be insulated, because the weight keeps the wire centered in the casing (3). At the ground level, the antenna is connected to a ceramic feed-through insulator attached to the bottom of a 7" x 12" x 2" utility box (4).

MATCHING

The antenna will have a high impedance, typically several thousand ohms. Fortunately, the well construction provides a built-in matching arrangement. Since the antenna is centered in the well casing, the two parts act as a section of coaxial transmission line. The impedance of a coaxial line (Z) is a function of the inside diameter of the outer conductor (the well casing), D , and of the diameter of the inner conductor (the antenna wire), d , according to the following formula:

$$Z = 276 \log \frac{D}{d} + .096$$

It can be seen that for a well about six inches in diameter that the impedance of the "coax" will also be several thousand ohms. Thus, the coupling of the antenna to itself acts as a balun, and a perfect match is achieved.

ON THE AIR TEST RESULTS

A dryhole antenna was constructed and tested for 160M by the author. Several wavelengths of image-antenna were lowered into the hole, and matched and tuned as described. The noise attenuation was fantastic! Practically no atmospheric noise was detectable. Signal levels on transmit were also amazing. Before installing the dryhole device, I had no 160M antenna at all, due to space limitations. Thus, the dryhole was many S-units better than what I had previously!

The only "problem" that developed turned out to be a blessing in disguise. The hole filled slowly with oil! Due to the change in dielectric constant, some re-tuning was required until the entire hole filled. Once full, the oil served nicely to insulate the wire from the casing. It also lubricated the antenna, preventing corrosion.

FOOTNOTES

1. Huong, C.-H. and Weisbach, Z. (1934). Trans. Hung. Acad. Geophys. 37, 104-119.
2. Doping of semiconductors to provide excess holes in the substrate is the basis of N-channel devices. Formerly, tunnel diodes used this approach.
3. If the well has been slant-drilled, the antenna will require insulators at 50-foot intervals. The above-ground (image) antenna will then also be slanted, causing some directionality like that seen for a traditional sloper.
4. Be sure the matching box is larger than the hole, otherwise the entire assembly will be pulled into the well.

THIS ROLL OF COAX IS PLENTY LONG ENOUGH --- I THINK
de Bill, K2TNO

How many times have you said that, at Field Day or at the home QTH ? I know I've stared at hunks of coax plenty of times, and wondered if I had enough for the run from antenna to rig. My guesses are extremely accurate, too --- I always underestimate the roll by exactly five feet ! (I think the double-female coax fitting was invented for people like me).

Here's a helpful tip or two to help you measure a coax roll accurately without the need to uncoil it. Just weigh it, or measure the capacitance of the roll ! (The latter can be done easily if you own a modern digital multimeter with a capacitance scale --- otherwise go to a bathroom scale).

I determined weight and capacitance of RG-213 and RG-8X, for severallengths I had available. The data are shown in the table below.

BELDEN COAX CHARACTERISTICS*

TYPE	WEIGHT/100 FT	CAP./100 FT
RG-213	10.34 lb.	3048 pF
RG-8X	3.85 lb.	2667 pF

*These values are not identical to the published "nominal values" listed in the Belden catalog.

Each coax length was tested with Ph-259 coax fittings attached. Capacitance measurements were made with a Beckman Model DM-31 Circuitmate multimeter.

K5KG MOVES TO BIG APPLE

George, K5KG, left Buenos Aires August 7. After due consideration, he accepted an offer from Merrill-Lynch as Vice-President of Treasury Systems, and will office in Mid-town Manhattan. (That's North of US 90 for all you good ol' boys !) George and Kay have decided to lease a penthouse apartment in Battery Park about 10 minutes by foot from George's office. George advises they won't even own a car !

George has no serious plans for ham radio for the first year or so as the new job demands 120% of him time. (conservative estimate) He has already "crawfished" a little indicating he will contact the local DX and contest clubs with an eye for a multi-multi station ! Congrats to George and Kay !

An Amateur Radio Tower

Why do people get upset when one puts up a radio tower ? A few things in its favor.....

IT DOESN'T
Squeal its brakes
Screech its tires
Blow its horn
Roar its motor
Slam its doors at ungodly hours
Shine its headlights in your
bedroom window
Nor does it backfire.

IT DOESN'T
Drop leaves that you have to
clean up
Grow branches over your house
Drop fruit or nuts which block
your downpipes
Block your view like a tree
or building
Grow roots that damage your
walk or driveway
Nor does its roots plug your
drains.

IT DOESN'T
Bite you
Bark or meow
Leave deposits on your property
Dig up your garden
Scratch on your door
Widdle on your trees
Nor does it dig up and scatter
your garbage.

IT DOESN'T
Have boisterous parties
Or play loud music
Or have swimming parties through
the night
It doesn't ring ring your phone
(accidentally ?)
Nor does it ride bikes across your
lawn.

It's just quiet and has nothing to say.....

Marvin Wilson, VE7BJ; de The Ontario Amateur

ANNOUNCEMENTS

MEETING NOTICE - The Texas DX Society meets the second Friday of each month at De Montrond Motorhomes, 6015 Hillcroft, just South of the Southwest Freeway at 7:30 P.M.

BULLSHEET MAILING LIST - The Club provides the Bullsheet free of charge to all amateurs with an interest and DX and Contests. To subscribe, send your name and address to TDXS, P. O. Box 540291, Houston, Texas 77254-0291.

BULLSHEET ARTICLES - Articles and other newsworthy items are hereby solicited by the editor. Please send them to Chuck Dietz, KE5FI, 4406 North Main, Baytown, Texas 77521.

WEEKLY DX AND CONTEST NET - TDXS sponsors a weekly DX and Contest net on our 147.36/147.96 repeater each Thursday night at 9:00 P.M. The purpose of the net is to exchange DX, contest and club information. Participation is welcomed from non-members as well as members. Your active support of this net is welcomed.

CONTEST CORNER
de NT5D

Just when you thought you've gotten rid of me, I came back ! I had a great time in KH6 and can't wait to go back. I tried to take a tour of KH6XX but none of the locals on 2 meters had ever heard of him ! I was thinking of taking my 930 with me to do some operating but that did not sit very well with the new XYL. Well, maybe next time.

As of this writing, the NCJ Sprint CW is only four days away and if you haven't heard already, Team #1 is a Heavy Hitter:

K5GA @ W5MMU	K5MA
K5LZO	K5TU @ K5RVK
K5WA	KN5H
K2TNO	KG5U
K5GN @ NR5M	NT5D @ NN5W

If that doesn't look like a first place team, I don't know what does. For the first time in a long while, Team #2 is strong.

N25I	N5IVF
WX5S @ KJ5Y	KZ5M
K5DX	B5DU

The Club is still looking for operators for the SSB Team #1. If you think you can be on please let me know at the next club meeting or call me at home 777-6352. It has been a while since the Club has taken First Place in the SSB Competition of the NCJ Sprint. I think the real reason has been that we cannot get 10 members of the Club to get on without fail and turn in their logs. Even though the Club favors the CW mode, we have excellent SSB ops !

If you are not planning to operate Sprint, at least get on and support the Club by giving the team members a contact or two. Any and all contacts are appreciated. Now on the rumors and results.

RUMORS.....

1987 CQ WPX Contest

KE5FI	9th Place, Single-OP, All-Band, U.S.
KG5U	11th Place, Single-OP, All-Band, U.S.
WZ4Q/5	7th Place, Single-OP, All-Band, U.S.
W5WMU	3rd Place, Single-OP, 3.7 MHz, U.S.

73 Magazine National Championship

WX5S 650 Q's Combined CW & SSB Score

RESULTS.....

1986 CQ WW DX Phone Contest

NR5M 5th Place, Multi-Multi, U.S.
(OPS: HK4FFR, K2TNO, K5GN, KD5SP, KE5IV, KG5U, KN5H,
N5DU, NM5M, NT5D, NZ5I)

KE5FI 2nd Place, Single-OP, 10M, U.S.

W5WMU 8th Place, Multi-Single, U.S.
1st Place, Multi-Single, W5 (All District)
(OPS: K5GA, K5LZO, KZ5D, W5XZ, N6TR)

1987 JUNE VHF QSO PARTY

WB5RUS 2nd Place, Multi-OP, South Texas
(OPS: K5LZO, KE5IV, N5IVF, WB5RUS)

1986 CAN-AM CONTEST

W5ASP 1st Place, Single-OP, Single Band, U.S.

COMING ATTRACTIONS

Sept. 12 - 13	European Phone Contest
Sept. 12 - 14	ARRL VHF Q50 Party
Sept. 13	NCJ Sprint CW
Sept. 20	NCJ Sprint SSB
Sept. 19 - 20	CRRL CAN-AM SSB Contest
Sept. 26 - 27	CQ WW RTTY DX Contest
Oct. 3 - 4	VK/ZL/OCEANIA SSB Contest
Oct. 10 - 11	VK/ZL/OCEANIA CW Contest
Oct. 10 - 11	IRSA SSB & CW Championship
Oct. 11	RSGB 21/28 MHz SSB
Oct. 18	RSGB 21 MHz CW Contest
Oct. 24 - 25	CQ WW DX Phone Contest
Nov. 7 - 9	ARRL CW Sweepstakes
Nov. 14 - 15	European RTTY Contest
Nov. 21 - 23	ARRL SSB Sweepstakes
Nov. 28 - 29	CQ WW DX CW Contest

The above is only a SUMMARY of the upcoming contests. Do we really need another contest to decide the World Champion ?

See you next month and hopefully, we'll have the results of the 1986 ARRL DX Contests.

DX Report (de W15P)

Andaman Island --- VU/A
October 5 - October 26 - By VU2GDG Gopal & Company 5 Stations
Modes: CW & SSB

Chatham Island --- ZL7IX
07:00 - Freq: 7,162

E. Kiribati (Line Is.) --- T32BE
September 9 - September 23 - By WC5P

Iran --- EP
EP2EK -- 03:18 - Freq: 14208
EP2HRD -- 19:32 - By Mohammed - Freq: 14156

Jan Mayen --- JX9CAA
By LA9CAA, Odd - Watch 75/80 after 2100Z.
Also plans to operate from the Western side for BETTER shot at U.S.
Modes: MOSTLY SSB, CW 20UP - Freq: 3.799, 7,070, 14.220 21,220
QSL Via LA9CAA

Kampuchea --- XU1SS
12:00 - Freq: 14,165 - Shows often - Still VERY weak signal

Kermadec Island --- ZL8HV
NOW - October 7 -- 06:45 - By Peter - Freq: 7,162

Liechtenstein --- HB9NL/HB0
Sept. 12 - Oct. 26 - By Frank - CW,RTTY,SSB - Freq: All + WARC
QSL Via HB9NL

Mount Athos --- 5X5GK/SV/A
Trying for September 15 - By Gerry & SV Ops

Sov. Mil. Order Of Malta --- 1A0KM
October ?(TBA)

Sudan --- PA0GAM/ST2
21:00 - 01:00 - Freq: 14,024

Tromelin --- FR5ZO/T
15:45 - Freq: 21,027

Tunisa --- 3V8RFA
October 19-27 - By Craig, WB7RFA - Including CQWW SSB

Western Sahara --- SORASD (Postponed)
By EA2OP,EA2JG,OH2BH, & Others -- This maybe count as a NEW ONE
This is the old EA9 Rio de Oro - Modes: SSB & CW 25 UP
Freq: 3795,7095,14195,21295,28595 - QSL Via EA2JG

***** ANTENNA RAISING INCIDENT *****

(EDITOR'S NOTE: This was found on a bulletin board in Fort Wayne, Ind. It is a ham's reply to a query from his insurance company.)

"I'm writing in response to your request for additional information for Block Number 3 of the Accident Reporting Form. I put "poor planning" as the cause for my accident. You said in your letter I should explain more fully, and I trust the following details will be sufficient."

"I am an amateur radio operator and on the day of the accident, I was working alone on the top section of my new 80' tower. When I had completed my work I discovered that I had, over the course of several trips up the tower, brought up about 300 lbs. of tools and hardware. Rather than carry the now un-needed tools and materials down by hand, I decided to lower the items down in a small barrel by using a pulley, which fortunately was attached to the gin pole at the top of the tower."

"Securing the rope at ground level, I went to the top of the tower and loaded the tools and materials into the barrel. I went back to the ground and untied the rope, holding it tightly to insure a slow descent of the 300 lbs of tools. You will note in Block Number 11 of the Accident Reporting Form that I weigh only 155 lbs."

"Due to my surprise at being jerked off the ground so suddenly, I lost my presence of mind and forgot to let go of the rope. Needless to say, I proceeded at a rather rapid rate of speed up the side of the tower. In the vicinity of the 40' level, I met the barrel coming down; this explains my fractured skull and broken collarbone. Slowed only slightly, I continued my rapid ascent, not stopping until the fingers of my right hand were two knuckles deep into the pulley."

"Fortunately, by this time, I had regained my presence of mind and was able to hold on to the rope in spite of the pain. At approximately the same time, however, the barrel of tools hit the ground and the bottom fell out of the barrel. Devoid of the weight of the tools, the barrel now weighed approximately 20 lbs. I refer you again to my weight in Block Number 11. As you might imagine, I began a rapid descent down the side of the tower. In the vicinity of the 40' level, I met the barrel coming up; this accounts for the two fractured ankles and the lacerations on my legs and lower body."

"The encounter with the barrel slowed me enough to lessen my injuries when I fell on to the pile of tools, and fortunately only 3 vertebrae were cracked. I'm sorry to report, however, that as I lay there on the tools, in pain, unable to stand, and watching the empty barrel 80' above me, I again lost my presence of mind. I let go of the rope."

