



DXing the Graveyard Channels

By Les Rayburn, N1LF

The most crowded channels in the AM broadcast band are the so-called "Graveyard" channels of 1230, 1240, 1340, 1400, 1450, and 1490 kHz. On average, there are 150+ stations operating on each frequency. The majority of them run 1000 watts day and night into non-directional antenna arrays. Listening to any of these frequencies after sunset can sound like a crowd at a baseball game, making reception of individual stations very difficult.

Newcomers to the hobby might well think it was impossible to hear any single station at great distances, but in fact, many of these stations have been heard at distances of over 2,000 miles or even more. Receptions of 600+ miles are commonplace.

Spend some time looking over the Graveyard DX Achievements web site maintained by Bill Hale at: <http://www.nrcdxas.org/GYDXA/> You'll quickly notice that the names of certain DX'ers appear over and over again in the record books. In an effort to log more stations on these crowded frequencies, I've sought the advice of some of the most successful among that group. In the process, some knowledge has been shared that may be of use to others.

This article will share some of the questions posed, and then highlight the answers given. In some cases, I'll also share some of my own thoughts, though I have far less experience than most.

In your experience, what is the most productive time of day for hearing DX on the graveyard channels?

Although my recordings at the top of the hour overnight have been quite productive, I still think sunrise and sunset are the best times on any frequency, including graveyards. -**Paul LaFreniere**

Early morning prior to sunrise because no two mornings are the same and DX can come from any direction.-**Mike Stonebridge**

I haven't done an analysis of the times of my loggings, but they are fairly well spread through the nighttime hours. Basically, the best times are those in which propagation is abnormal in some way, favoring certain directions and/or distances, and thus stirring up the GY mix. This includes sunrise/sunset of course, as well as times when there are auroral or other disturbances. Sunrise has been particularly fruitful here - so much so, that I often record and check BOH intervals that occur within an hour or two of sunrise.-**Barry McLarnon**

Definitely the use of overnight, unattended recording is the big boon for me. It's responsible for my GY totals increasing from one local per channel (total 6) to my current total of 95 across the 6 frequencies. I never realized that, by parking on a frequency, something would actually pop out of the noise at ID time :-). My personal best is three different station IDs at one TOH. -**Brett Saylor**

That has changed over the years. It used to be between 2300 and 0105 local time. Second best would be 0100-0300 for then-common frequency checks. Today, I'm not sure if there is a 'best time', but sunrise and sunset enhancements apply to all channels equally, so that might be the best shot today.-**Russ Edmunds**

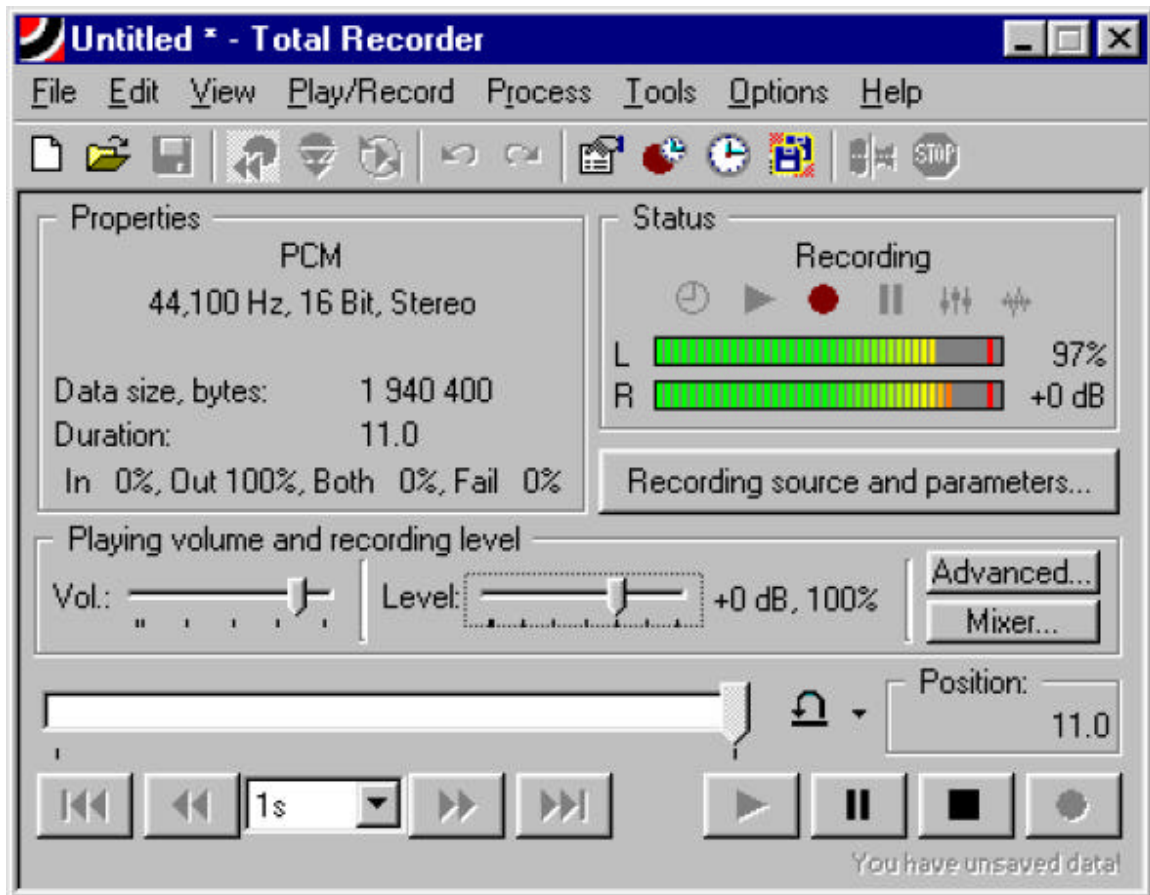
That is a question I ask myself often. After about a year of this, I have concluded that about an hour before sunrise to two hours after and one hour before sunset to two hours after are the most productive for me.-**Russ Johnson**

A bit after local sunrise in order to grab ones that are not too far away (e.g. Virginia from Ontario), but at the same time while a channel sounds less cluttered. After local midnight or 1AM some stations still sign off, leaving less clutter on the channel. And sign offs stick out!-**Neil Wolfish**

Use some sort of overnight unattended recording equipment. I use Total Recorder and it has enabled me to increase my GY totals from 25-30 GYers logged to my current 73 GYers in the log.-**Bruce Winkelman**.

Most DX'ers seemed to be in agreement that there was no "best" time of day, other than SRS/SSS, when it comes to logging new ones on the graveyard channels. It's more a matter of being at the right place at the right time. The one tool most often cited to make this possible is the use of the "Total Recorder" software by High Criteria. At a cost of only \$11.95 for their basic software, it may be the best value in DXing. Most DX'ers seem to record a period of about two minutes prior to the top of the hour (TOH) until about seven minutes after.

Experience indicates that at least 1/3 of all loggings will come just after network news at around five minutes after TOH.



Total Recorder has a “schedule” feature that allows you to set up TOH recordings for the entire day. With a few more clicks, you can convert these files into smaller compressed .MP3 files. Most DX’ers will then review these recordings during the next day.

Some burn the files to CD’s and listen to them during their commute times. Others will steal a few minutes during their lunch break. But all agree that this one tool is responsible for a lot of new loggings.

You can download a trial copy for free at:

<http://www.highcriteria.com>

Some comments about this software are in order:

I’ve been recording for over a year, and I record TOH from xx:58-xx:03 every hour from before local sunset to after local sunrise the next morning. I record xx:29-xx:35 on the BOH for the “critical” hours, too. I

try to review the recordings the next morning, but usually don't get to it until the weekend (if ever!). I usually will drill directly to the xx:59:50 mark to catch the few seconds before TOH where most ID's occur. I know I miss the other possible times for ID's, but since I don't have a lot of time that's all I can afford. Oh yes, by the way, I sync my PC clock daily using NISTtime [software] to make sure it's within a second or two of actual time. –**Brett Saylor**

I no longer have the patience to sit on the graveyard channels for long periods any more unless I'm receiving a solid signal, which isn't very often. Just too much of a jumble, so all my graveyard DXing is done by timer and recorder. It's quite amazing how the channel can be a mass of stations and right at the TOH I hear a clear full ID, and then it's gone. Most nights everything is set for the period two minutes before to three minutes after every hour from midnight to sunrise. This method has produced 13 new graveyard loggings so far this winter. –**Mike Stonebridge**

Is there a season of the year that seems to result in more new loggings on the graveyard channels?

Summer has definitely been more productive for me. My own opinion on this is that in the winter it is still nighttime conditions at 0500 & 0600. In the summer it is SRS conditions at those hours.

Nearly all of my loggings have been from March or April through September. I have never bothered to determine the length of time any one station dominated the frequency or the weather conditions at the time [pressure reading, temp, whether it is cloudy etc].

I was always thinking of determining what the average distance is for these loggings. I do know that many times a station will show up for two or three nights consecutively and then disappear for good. Also--there are graveyard pests. I have found that two or three stations on each frequency are in often. – **Paul LaFreniere**

I find that spring and summer are best for GY; however, I can't provide you with an explanation. –**John Vervoort.**

Absolutely! Many of my best GY catches have been in the summer months. Propagation conditions are different than in the winter, so the "mix" tends to be different. I'm also convinced that sporadic E plays a part in MW propagation, and Es is obviously more common in those months. With fewer interesting catches available on the other frequencies, summertime is a great time to concentrate on the GYs. –**Barry McLarnon**

Summer static is less of an issue on a frequency where 50 stations are piling up to produce a constant S9+40db signal. Though I check in with the GY frequencies throughout the year as conditions are always changing. –**Rick Kenneally**

A DX season of any kind is pure myth, especially nowadays, with modern receivers and antennas successful MW DXing can be anytime of year. The only difference between the warm and cold weather months will be that local thunderstorm activity can cause temporary shutdowns. (Examples: Thunderstorms in New Hampshire made DXing impossible during the recent WTAM

downtime, yet one summer while visiting Tampa, Florida, I could DX between storms to log some interesting Cuban signals.)

The best time to DX during the summer months will be at local sunset when atmospheric conditions are varying widely (although thunderstorms tend to be strongest before local sunset), and during the pre-dawn hours when thunderstorm activity cools off for the most quiet noise levels. -**Bruce Conti**

I agree [that summer can be more productive] Atmospheric conditions are more variable and not as good, often resulting in more surprises. That said, however, I've also found, as Bob Foxworth mentioned, that conditions to New England from the Middle Atlantic States are best then. The final reason is the existence of extensive networks for both major and minor league baseball.-**Russ Edmunds**

How do auroral (AU) conditions affect the graveyard channels? Do you find these periods to be more productive?

Being this far north aural conditions usually wipe out all DX at this location. During a high aural period I consider myself lucky if I can hear any station outside of Alberta.-**Mike Stonebridge**

Only if there are stations 100+ miles or so to the North which normally dominate the frequency.-**Russ Edmunds**

AU conditions are a good time to check out the GYs, if you can tear yourself away from the other stuff. My logging of WFOY was in AU conditions, and there are quite a few more like that in the log. It's hard to imagine hearing a Florida station essentially alone on a GY channel under any other conditions from this location. (Ontario, Canada)-**Barry McLarnon**

They bring in neat stuff for Ontario DXers, like SC, FL, AL... as long as the AU isn't too severe. If that happens, then all I get is ground wave from the nearest GY station to me.-**Neil Wolfish**

Answers to this question seemed to vary a lot by the location of the receiver. Here in the Southern US, I find that AU conditions can have the effect of reducing some of the clutter on the crowded local channels, by attenuating signals from Northern stations. Many of my new loggings from Florida GY's have come during periods of severe AU conditions.

Are there any types of antennas, equipment or receiver settings that you find helpful on these crowded channels?

ECSS [Single Sideband] is about the only way I DX these days. It is much easier to pull an ID out of the jumble. That is one way the Drake R8 really "sings" in the ECSS mode. Many catches I would never had heard without it.-**Patrick Martin**

One technique I use is to tune off frequency 1-2 kHz. Sometimes stations can be heard out of the hash. Then I de-tune my loop (variable capacitor) and then tune back into the frequency until a station is audible. I don't completely peak the signal. This is how I heard KSMA on Saturday, in for about 8 minutes before they faded down.-**Martin Foltz**

The passband tuning on my R8 makes it possible to choose a sideband and peak it for the best sounding audio on the graveyards, which is important - I find that getting rid of the bassy "rumble" of the GYs makes the ID's stand out better. -**Brett Saylor**

I use an AOR-7030+ receiver set on b/w of 4 kHz and my K9AY antenna. I find this antenna is superior to my EWE because it has much lower noise levels. I usually adjust the null against one of the regulars, if one is on top. -**Mike Stonebridge**

For unattended recording, the Sony 2010 is my choice. With its mechanical on/off switch, it works great with digital timer and mini-disc recorder - plus the synch detect is very helpful. For live listening, my choice is a modified Icom R75. Copying in ECSS mode is a dream with the R75. Passband tuning is very effective. I am also a big fan of the little Koss Koss EQ-30 or EQ-50 portable equalizer. Some adjustments with that can make the difference in understanding an ID or not. Of course, good headphones are essential. My current favorites are the Telex Airman 760 (aviation use). -**Russ Johnson**

The Quantum Phaser has been valuable as well, allowing me to null the semi-local GY'ers and with luck, my one local on 1340. On all GY frequencies except 1340, I can set the phaser to enhance reception to the north or south. I haven't had as much success peaking reception to the east or west for some reason....perhaps it is due to the configuration of the wires. -**Bruce Winkleman**

I always use SSB mode, choosing whichever sideband has the least adjacent channel splatter, along with a 4 kHz IF filter. -**Barry McLarnon**

One type of antenna that has shown some promise on the graveyard channels is the use of NVIS [Near Vertical Incidence Signals] antennas. Most of these are common antennas mounted close to the ground so that they favor high angle skywave signals.

Usually DX'ers seek to receive low angle signals, since these represent the stations farther away from the receiver. But with graveyards, using a NVIS antenna can have the effect of "turning down the noise" on the frequency by reducing the signal levels from those more distant stations.

My NVIS antenna is a simple dipole cut for the 80 meter ham band, mounted only ten feet above the ground. Since erecting it, loggings of "medium distance" GY stations has improved, adding several new ones in the 400-600 mile distance range. The NVIS antenna also seems to work wonders when used as a source antenna for my Quantum Phaser. Using it in combination with a whip or beverage on the ground (BOG) can dramatically affect null levels.

Other antennas such as loops seem to be less useful on GY channels due to the number of signals coming from multiple directions. They can be very helpful if you have a local station on one or more of the frequencies.

Do you use software to process your recordings of graveyard ID's and what results have you seen? Is there other software that you find useful?

Cool Edit [Now marketed as Adobe Audition] is essential for normalizing, filtering, and slowing down the playback to determine IDs. Probably half of what I've added to the log is the result of this tool. I would not have WKDK's DX test (where this all began) or Poynette's WHFA without Cool Edit.-**Gerry Bishop**

<http://www.adobe.com/products/audition/main.html>

Regarding other software I do use TrueTime WinSync which keeps my computer (with cable modem) within a second or so of accurate time!-**Tom Kenney**

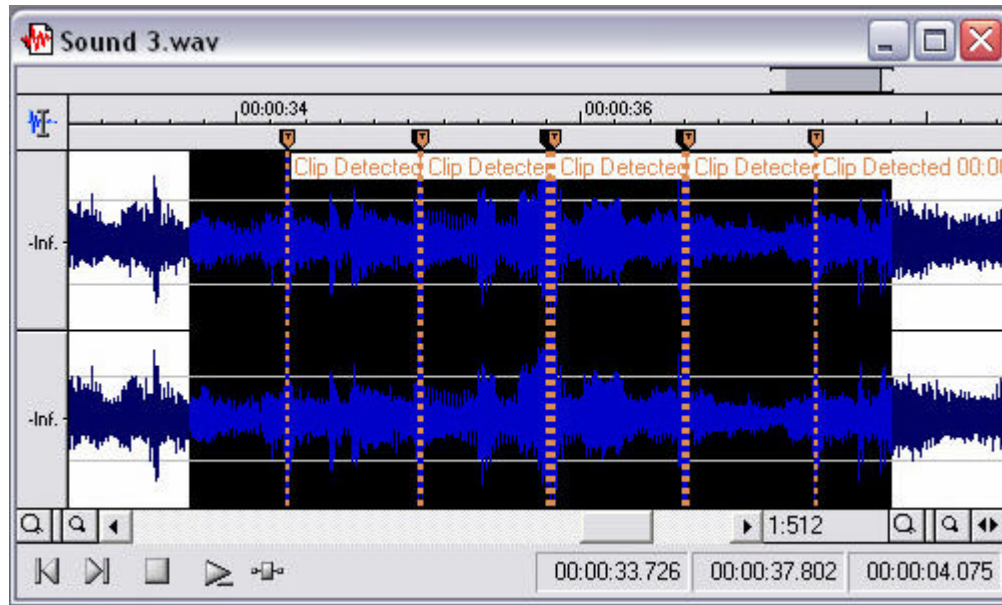
<http://www.truetime.net/software-winsync.html>



I play back in WinAmp, but if I need to edit I'll use CoolEdit. I don't do nearly the slow-down/clean-up that Gerry Bishop or Russ Edmunds do, but will occasionally tweak a file for better readability. I recently downloaded a trial version of Adobe Audition (which is what they renamed CoolEdit when they took it over) but I don't see many reasons to consider switching to it (considering the price).-**Brett Saylor**

<http://www.winamp.com>

My personal experience is with Sony's Sound Forge 7.0 software. Similar to Adobe's Audition software, this software has a lot of uses when dealing with recorded computer files. I import my files one at a time from Total Recorder.



Right away, you can see a very detailed waveform of the recorded file, sometimes allowing you to visually see where events such as a TOH ID take place. You can slow down portions of the file (such as an ID) to make it easier to separate consonants, you can apply advance noise reduction algorithms, and apply EQ to help pick up key words. Both Sound Forge and Adobe Audition are expensive, but they're also very powerful. I'll echo Gerry Bishop's comment; there are quite a few new ones in my log that I wouldn't have gotten without the software.

<http://mediasoftware.sonypictures.com/Products/>

Any thoughts on why some nights the GY channels seem to just be a jumble of noise with few clear ID's, while other nights yield lots of clear ID's?

I've never timed it out, but my experience has been shorter periods of one station dominating - more like 3 to 5 minutes. But I've noticed no particular patterns of note other than the 'usual' ones such as severe aurora or the approach of a very strong weather pattern in winter. -**Russ Edmunds**

When the GY stations were 250/500 w at night... the situation was VERY different than it is today. As others have noted, stations would fade in and out and listening to a GY frequency produced many new loggings for me.

However, since they all are now 1kw day/night, the situation has changed, at least for me! There is typically one dominant station... and a bit of a jumble underneath. Very occasionally, a 2nd or 3rd station will fade in for a bit... but with IDs being what they are these days (perhaps once

an hour) it is very difficult to LOG anything. And the fade ups tend to only last for 2-3 minutes vs. the 15-20 minutes of the past.-**Phil Bytheway**

This has always been a mystery. And more the mystery when three TOH pass with just a jumble, and the next hour will bring four ID's in 15 seconds, each clear. I'll offer that when signals are much jumbled, propagation is quite good to the point of overwhelming. I have no evidence, Just a hunch. -**Gerry Bishop**

Those of us who like to hang around on the GY channels often remark on the way they are usually a total jumble, and then, inexplicably, sometimes they magically become un-jumbled and provide some good loggings.

Last night I had a good example of this phenomenon. I trolled 1230 with timed recordings overnight. For the TOHs at 0100 and 0200, there was mostly a jumble with IDs.

Then the veil lifted, and I had a remarkable series of TOH catches. At 0300, a crystal clear ID from WGRY Grayling MI, nearly alone. At 0400, the same thing, but this time it was WMSH Sturgis MI. Ditto at 0500, only this time it was WTKG Grand Rapids MI doing the honors. WTKG was still holding on at 0600.

At 0700, the dominant station went through TOH with music, but at 0701 provided a nice clear ID as WCWA Toledo OH. At 0800, WCRO Johnstown PA stepped up to the plate. WCOL Columbus OH also slipped in there at times, so that's 8 good IDs in one session, and I could probably find a few more if I had time to listen to more of the recordings.-**Barry McLarnon**

Yes, GY DXing isn't exactly what it used to be. I have the same situation both in Azusa here and also back in San Jose. One station tends to dominate for the most part with hash underneath; though there are some frequencies where two or three will try to equally dominate (1490 is a good example).

1340 is a very interesting frequency, it tends to sound like a pure 'rumble', no one really dominates except when I get decent conditions to northern Baja then XEAA will totally dominate. 1450 is a beautiful frequency down here, I had Reno dominating the other night, some nights it's Escondido, some nights Porterville, even Tucson. Depends on conditions particularly if AU.-**Robert Wein**

This phenomenon is widely reported, but after over a year of coordinated monitoring by DX'ers of the same channel overnight, we're no closer to explaining how it works. It is what adds to the thrill of DXing these crowded channels. You'll review recordings of five or six hours in a row with only a jumble of noise and the occasional pest that you've logged ten times before, and then suddenly be rewarded with a station that you've never heard a single trace of before...and it may even be crystal clear.

What advice would you give to other DX'ers about the graveyard channels, especially to newcomers?

Patience, patience, patience. It is so much harder today for so many reasons - more stations, more full time operations, no special tests (frequency checks) increased noise. Other than unattended recordings, I don't spend a lot of time on GY's any more because the 'return on investment' of time is so low in terms of new loggings.-**Russ Edmunds**

Two words: timed recording. Whether I'm at the receiver or not, I try not to ever let a TOH slip by without recording on some channel, and I often leave the receiver on a GY channel if I'm not chasing something else.

Recording onto a PC makes it easy to review them, and you can try various processing to enhance the recordings if you're into that, not to mention archiving your catches and getting help with UNIDs by sharing audio clips with others. My PC is on 24/7 and is near my receiver, so it's easy to set up timed recording and just let it run. I usually record 8 minute segments around both TOH and BOH, starting at :29 and :59 minutes past the hour. The recording period extends at least an hour on either side of sunset/sunrise. It doesn't take long to review a bunch of TOHs (if I'm short of time, I don't bother with the less-productive BOHs). If I hear something interesting but I can't ID it right away, I make a clip, label it, and store it away in an UNID directory. Some rainy day when propagation is lousy, I can listen to them again, and occasionally am able to dig out an ID that I missed previously. In addition to listening to the time right around TOH, it's also very worthwhile to check around 4 or 5 minutes past TOH, when many stations are coming out of their news break.

Even if you don't do timed recording, it's essential to have good recording capabilities. Without it, GY DXing would just be frustration. And if you want to be truly successful at it, timed recording is a must.-**Barry McLarnon**

What I used to do is to "sit" on the GY freq. near the top of the hour. I used to run a timer to turn the recorder on from :58 to :02 or :58 to :07. Sometimes an ID will run between the spots out of the news and the programming which is mostly satellite talk on the AM dial now.

The GYers can be a lot of fun. Any person new to DXing should spend time on these channels. You never know what might pop in!-**Patrick Martin**

When listening, use head phones, and an audio recorder. Spend time at the dials. Graveyard stations are a lot of fun.-**Doug Pifer**

I'm fascinated that we're all parked on the same frequencies at the same time, and we so often don't even seem to experience similar propagation. There's a lot to be said for being in the right place, right time, and knowing what to do with the sound that comes through the headphones. -**Gerry Bishop**

Use some sort of overnight unattended recording equipment. I use Total Recorder and it has enabled me to increase my GY totals from 25-30 GY Stations logged to my current 73 in the log.

Definitely rig up some unattended recording method. Let your top of hour

recording sessions go at least till: 07 past the hour. I use the Russ Edmunds :58-:07 method. This will let you catch some local programming (ads, weather, ID, local news, etc) after the network news is over.

If pressed for time, fast forward though the network news - you are unlikely to catch anything new during that. Set up multiple antennas if possible and alternate during the week to improve chances of snagging something. For me, having a manageable number of tracks to listen to each day (six or so) is preferable to letting a huge number build up.

When the frustration of not logging anything new for a long time gets the better of you, take a break on a non-GY frequency at least until you log a new one! -**Russ Johnson**

Don't trust your ears, at least at first....listen, re-listen, re-listen and re-listen again. Go back later and re-listen again to the recording. -**Bruce Winkleman**

You must have at least a few months of experience and also a great deal of patience. The more you practice, the better you'll become. -**John Vervoort**

Learn the format of your local/regulars;

Grab a good book or a crossword puzzle and park yourself on a frequency until you determine who is dominating. Then move on to the next frequency. If you have an "opening" to one area, capitalize! If you hear Green Bay on 1400, look for other Wisconsin Graveyard stations too.

Don't be fooled by a strong signal with something like Jim Bohannon or Art Bell... you might discover that you are hearing three stations all carrying the same thing until they break for news and ID. And then you have 3 weak signals;

Have a tape recorder running to play back IDs and spots (especially when "E" can sound like "B", etc.)

Have some familiarity with professional and college sports nicknames;

Patience. -**Neil Wolfish**

I wouldn't do a session with the web site www.100000watts.com. It seems to be the most up to date listing of stations, their formats, etc. available on the web. For portable operations, I always carry a copy of the latest NRC AM Log. -**Les Rayburn**

So, you've gotten the bug and want to become a "gravedigger"...where should you turn for even more information about logging these elusive stations.

There is an e-mail list devoted solely to DXing the Graveyard Channels. Usually we pick a channel to concentrate on during the coming week...then exchange notes on what we heard. Frequently members will post short sound files of stations they are having trouble identifying. Often just getting another set of ears to listen can help clear it up.

We also exchange information about the stations, and have limited discussions about the technical side, usually software dominates those topics.

To subscribe, visit this web site:

<http://topazdesigns.com/mailman/listinfo/qy>

Another great source of information is the original article on the subject, written by the master, Bob Foxworth. This reprint is available from the National Radio Club. Ask for C Reprint is D11, "Successful Long-Distance Reception on the Class-IV Channels".

Written in early 1974, but much of the information is still very valid. I highly recommend it to anyone serious about this part of the hobby.

NATIONAL RADIO CLUB, INC.
Publications Center Order Form
P.O. Box 164, Dept W
Mannsville NY 13661 USA

Bill Hale's excellent web site is also a vital source of information. Bill keeps track of the record reported reception distance for each station. He even divides it into two types, Prior to 1960 and after. One check of the records indicates that things were much easier to log in good ole days.

<http://www.nrcdxas.org/GYDXA/>

Listening to the graveyard channels holds other rewards as well, especially early in the morning. You can still find quite a few locally owned and operated stations. You'll get school closing, lost puppies, and a lot of the regional charm that always made it so interesting to listen to distant radio stations.

It's still possible to hear the national anthem or phrases like, "WBAC now concludes another broadcast day"... Perhaps that's why these channels earned the nickname "Graveyard" to begin with. This is the way radio used to be...and perhaps someday will be again.

The author wishes to thank all the DX'ers listed in the article for sharing their wisdom with all of us. Any mistakes are mine, any credit should rightly be theirs.