The Pickle Barrel Review

THE OFFICIAL NEWSLETTER OF THE WESTON MOUNTAIN DIGITAL RADIO ASSOCIATION

January 2025

Introduction

Greetings one and all, and once again welcome to the Pickle Barrel Review! You'll find this issue filled with the latest happenings not only of the W7NEO system, and the NE-OREGON room, but System Fusion, Allstar, along with GMRS. All that said, as always, we invite others to contribute with articles, or if your club or organization is having an event such as a tailgate, swap meet, VE testing, or whatever, you can list it here as well. The only thing we ask is that your contribution be nonpolitical (unless it's a government action that directly affects Ham Radio), respectful of others (no personal attacks), and relatively family friendly. We realize your pretty darn proud of it, but we really don't want to hear about your new tattoo, let alone just where exactly it's located. And just to be clear, we apologize, but unfortunately your brother-in-law's bachelor party still doesn't count as a coming event. So, all that said, feel free to reach in the barrel,

grab yourself a pickle, pull up a chair and sit for a while as we discuss the latest happenings in Fusion, Allstar, GMRS, and Ham Radio in general.

Repeater Updates

Since our last issue, there haven't been allot of changes to our repeater system overall. So not allot to report on this month.

However, one item worth noting is with our Cabbage Hill 146.880 repeater. Earlier in December we had a horrendous noise interference that was locking up the repeater to the point it couldn't even be shut down remotely. Upon visiting the site, we met with one of the ODOT technicians working at the site located directly across from ours. We let him know about the interference, and after doing some checks on his equipment it was discovered that there was some circuits associated with the trunking system that were not only faulty, but weren't even being used. The circuits were isolated, and tested jointly by the technician, and our group and the problem was resolved. We also identified the same type of interference emanating from the railroad site right next door to ours. We were able to catch the technician onsite and work with him as well. Two good things came out of all this, one was that the interference hasn't returned, and two, we made two great new friends with our neighbors on Cabbage Hill. So, all in all, Win Win!

Given how winter tends to keep folks inside, being cooped up inside, in our case anyway, has provided allot of time to plan this upcoming summer's repeater projects. And we've been knocking around a few good ones.

One such project is to upgrade the current antenna on the Weston Mt GMRS repeater. Currently we have a small vertical, which does "okay." But given the unexpected success of the Cabbage Hill GMRS repeater antenna, before the tariffs kick in, we placed an order for a second Commscope DB408L. The hope is that this will not only clear up a dead spot in and around Milton-Freewater, Oregon, but will also open up a path to the Tri-Cities area in Washington.

That's about it for now, but as always, we're always looking for ways to improve our system, and make it just that much better for everyone to enjoy.

So, if you have any good ideas, let us know. We may or may not use them, but fresh ideas are always appreciated.

Lynn Wilson, K7LW

Disaster Preparedness

On Thursday, December 5,th 2024, a warning was issued along the coast of Northern California, and Oregon by the Tsunami Warning Center immediately after a level 7-magnitude earthquake struck at 10:44 a.m. The location of the earthquake was just offshore about 45 miles southwest of Eureka, California. Putting it mildly, this gave the folks over on the coast from Davenport, California, to just south of Florence, Oregon a pretty good scare. Now those of us here on the east side probably were thinking that since it didn't affect us, we really don't need to worry about it all that much. Some may even have thought to themselves; "Just what the heck is a tsunami anyway, and I wonder just how it would go with wasabi?"

Professor Dan Cox of the University of Oregon State earthquake research Center spent time traveling around Japan after the 2011 tsunami. Based upon his observations, along with ongoing research, he estimates that within 15 to 30 minutes following a 9.0 earthquake from the Cascadia Subduction zone, communities along the Oregon coast could see upwards of ten thousand casualties as the result of a forty-foot tsunami. Along with that, the majority of the homes in most of those coastal communities would be simply washed away. Professor Cox also said that only just a few years ago we weren't even thinking about tsunami preparedness, but now although we still have a ways to go, we're allot further along than we were, and today everything's on the table.

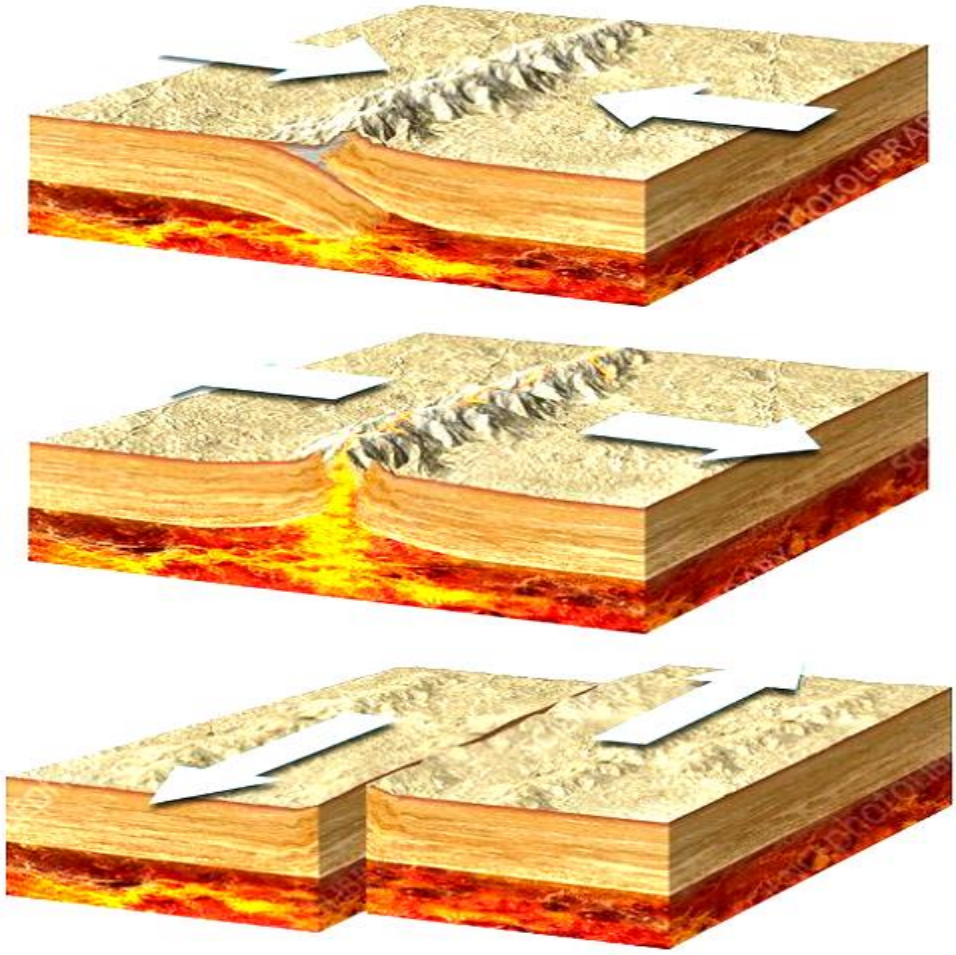
In this article hopefully we'll answer some questions of just what a tsunami is, and how it is created. With any luck, afterwards you might just change your way of thinking on that very topic.

The word tsunami itself is a Japanese word from a double root: tsu, meaning port or harbour, and nami, meaning wave. The textbook definition is:

A tsunami is a series of waves in a water body caused by the submarine displacement of a large volume of water, generally in an ocean or a large lake."

Okay, that all sounds lovely, but just what does it mean for us here in the Pacific Northwest? Well, as most are aware of, just off our coast is a nasty crack in the ocean floor called the Cascadia subduction zone. Basically, it's composed of a tectonic plate stretching for roughly 700 miles along the west coast of North America from Northern California all the way up to Southern British Columbia, and poised to give us one heck of a shaker. Subduction zones such as this one are blamed as the primary cause of tsunamis, and this one, which scientist believe to be a particularly nasty one, could reach as high as 9.0 on the Richter scale. In fact, Oregon has the potential for a 9.0+ magnitude earthquake caused by the Cascadia Subduction Zone. This intern carries the potential of a resulting tsunami of up to 100 feet in height that would impact the coastal area. Your awake now, aren't you?

So why was it that this recent earthquake didn't produce the massive tsunami normally associated with a subduction zone quake? Here's where things get tricky, so before we get into the mechanics of a subduction zone, we first need to understand the rest of what is referred to as "boundary types." Truth be told, there are actually three different tectonic plate boundary types. Below are some diagrams showing the three main types of movement, as indicated by the arrows.

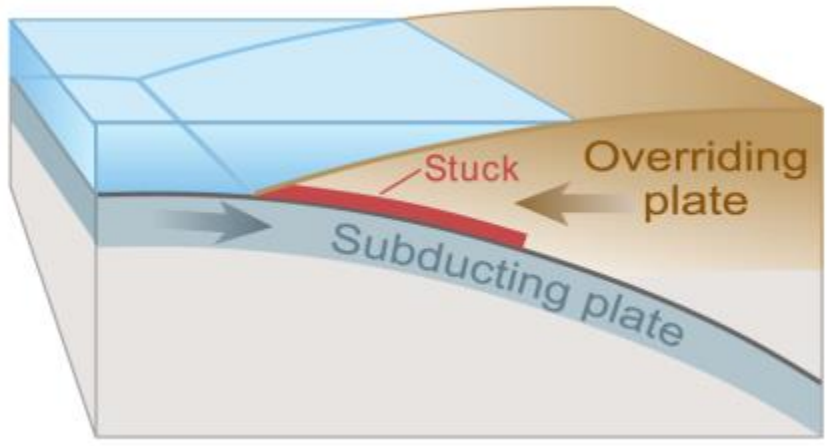


The three different types of boundary movement; convergent, divergent, and parallel.

What happened recently off the coast of Northern California were tectonic plates moving parallel to each other (bottom) leading to what is referred to as a “strike-slip” earthquake with relatively little deformation. Which is basically why the expected tsunami threat turned out to be somewhat lack luster. But that’s not to say that the other two types of boundary movement aren’t equally important. At a divergent boundary (middle), such as a mid-ocean ridge or rift valley, the plates move apart and molten rock (orange) rises to form new land (islands). At a convergent boundary (top), such as a subduction zone, one plate moves under the other as they collide (thrust or reverse faulting). This also leads to the formation of mountain ranges and volcanoes along the boundary as the subducting plate melts. This one in particular is the primary cause of tsunamis, and the one which we will dive alittle deeper into in order to better understand some of the mechanics that produce a tsunami.

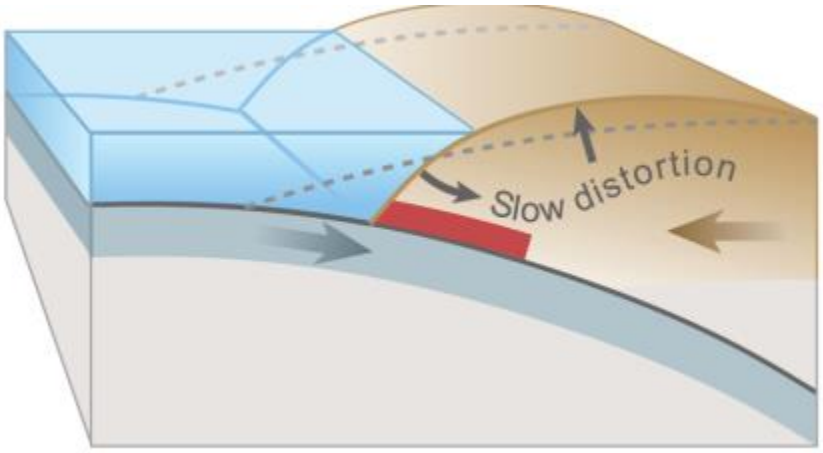
So just why is it that the Cascadia Subduction zone has scientists, and emergency management folks up and down the Pacific Northwest coast so worried? For the answer to that, let’s take a closer look

Tsunamis are often caused by tectonic plate shifts that result in earthquakes, and the most common type of tectonic plate shift that actually causes tsunamis is a convergent boundary, which is what the Cascadia subduction zone is.

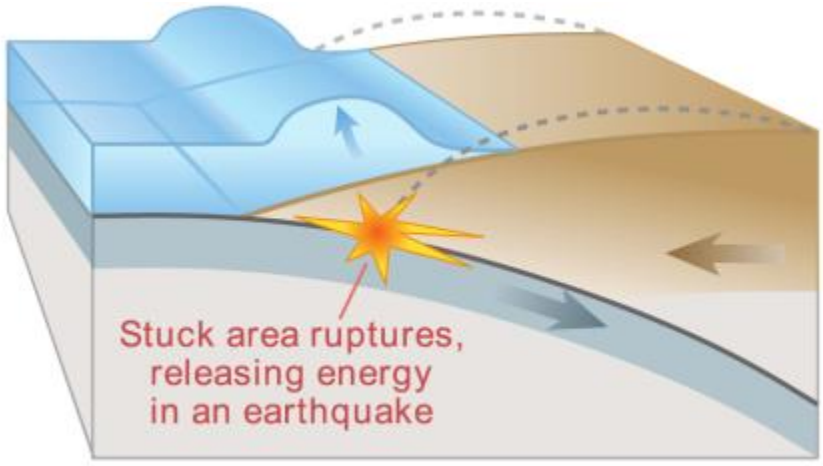


This occurs when one of the many tectonic plates that make up Earth's outer shell descends, or "subducts," under an adjacent plate. This kind of boundary

between plates is called a "subduction zone." When the plates move suddenly in an area where they are usually stuck, an earthquake happens.



Stuck to the subducting plate, the overriding plate gets squeezed. Its leading edge is dragged down, while an area behind bulges upward. This movement goes on for decades or centuries, slowly building up stress.



An earthquake along a subduction zone happens when the leading edge of the overriding plate breaks free and springs seaward, raising the sea floor and the water above it. This uplift starts a tsunami. Meanwhile, the bulge behind the leading-edge collapses, thinning the plate and lowering coastal areas. The end result is both an earthquake on a massive scale, which produces an equally massive tsunami.

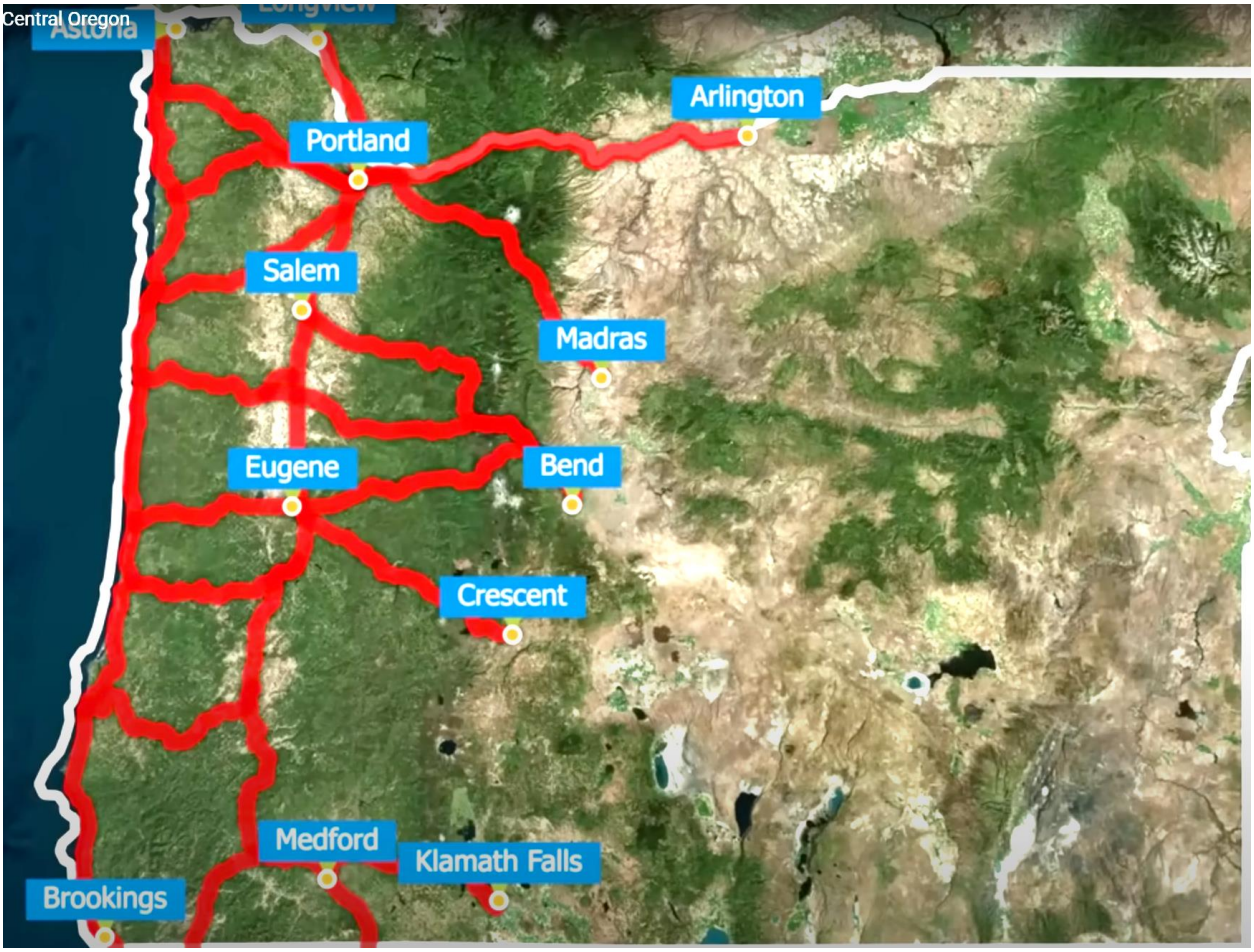
So, if you compare a convergent boundary movement, to a parallelled boundary movement, you'll notice that a parallel movement lacks the violent vertical characteristics mentioned in a convergent boundary movement. This sheds a better light on just what happened this past December, and why it was that the Oregon coastal communities didn't get the massive tsunami they were expecting.

Now that you have the basics of just what causes all this chaos to begin with, let's get into the after effects, and preparing for just what follows.

Since 1854, 21 tsunamis have impacted the Oregon Coast. The last two damaging tsunamis were in 1964 as a result of the Great Alaskan Earthquake, and in 2011 as a result of the Great Tohoku Japan Earthquake that caused severe damage and contributed to the deaths of four people on the Oregon Coast. So, to say this is unlikely to happen in my lifetime is a big stretch, and not something I would lay odds on. Remember, most all earthquakes happen suddenly, and without any warning.

What sort of damage can be expected, and just how far inland will this affect those of us living on the east side? It's estimated that unreinforced masonry structures (URM's) constructed prior to scientists knowing that the Cascadia Subduction zone even existed could experience significant damage during a 9.0 earthquake such as would be produced by a sudden slip in the Cascadia Subduction zone. These buildings can be found all over in places such as Madres, Redmond, Bend, etc. Those living in and around these types of buildings should be aware of the danger, and make appropriate escape plans in the event of a major earthquake.

Several main highways will be unusable due to collapsed bridges and causeways. These include; the Coastal Highway 101, and Interstate 5, along with Interstate 84 through the Columbia Gorge. Additionally, several interconnecting highways such as highway 26 to Madres, highway 58 to Eugene, Santiam Pass, and Klamath Falls to Medford, all would be closed. The only fully functional highway left would be highway 97, which would most likely be jammed with traffic.



After a major earthquake, most major highways in Oregon would be rendered totally unusable

Although there is a playbook put out by the Oregon Emergency Management folks to address all of this, it's still expected to take a while in order to get things somewhat back to normal. So, plan on everyday items such as fresh food, and fuel to be in short supply.

Getting back to tsunamis, what if you should one day find yourself on the coast taking a short break from all the chaos of SEAPAC, enjoying a nice peaceful day at the beach. Suddenly you hear alarms going off, you think to yourself; "what exactly are the alarms, and what should I do?" Here are a few suggestions from the Oregon Office of Emergency Management (OEM):

Tsunami Alerts: Tsunami messages are issued by Tsunami Warning Centers following a possible tsunami-generating event (i.e.

earthquake). Tsunami messages may be updated or canceled as information becomes available. There may not be enough time for an official warning, so it is important to recognize the natural warning signs described in the "What To Do" section below. Visit the National Weather Service (NOAA) website to learn more about the four types of tsunami alerts (Warning, Advisory, Watch, Information Statement).

Tsunami warning messages are issued by Tsunami Warning Centers following a possible tsunami-generating event.

What To Do: If you are near the coast and feel a large earthquake, see a sudden rise or draining of ocean waters, or hear a loud roar from the ocean, a tsunami may follow. During an earthquake, Drop, Cover, and Hold On until the shaking stops. Once the shaking does stop, walk inland and up to high ground and stay there. Do not wait for an official warning. A tsunami could come ashore in just a few minutes.

Actions to be taken in the event of an earthquake when near the ocean.

Once you're over that, and everyone around you is still trying to digest what just happened, if you're with family, your number one priority during any emergency is always going to be to make sure their okay. Providing all is well with your family, and no one around you is in need of immediate attention, you might want to seek out a few of the emergency volunteer efforts that will no doubt be ramping up. From the sounds of it, none of the roads will be passable anyway, so why not, right?

One such organization worth checking out is DART (Disaster Airlift Response Team). This is a group of volunteer private pilots who fly emergency supplies into heavily impacted areas after a major disaster in the Northwest (primarily a Cascadia event). In such a case, it is expected that all or most infrastructure such as electric power, water, communications, medical, and transportation facilities will be destroyed or at least impaired for a long period of time.

Walla Walla, specifically the Regional Airport (KALW), is designated the "Out of Impact Area" logistics hub for such a response.

DART's mission statement outlines that DART is a volunteer airlift resource available to help communities and emergency responders cope with a local disaster. Pilots do what they already know how to do – fly from one place to another and give people or things a ride. Bare in mind that there are precious few airports in the Pacific Northwest that are actually certified to land military transport aircraft such as C-141's, and C-17's, Redmond OR being one of them. So, these guys and their general aviation (GA) aircraft would not only provide crucial airlift services in the event of a major disaster, but would also survey the damage from the air, and report it back to the OEM.

DART is part of the West Coast General Aviation Response Plan (WCGARP) and the Emergency Volunteer Air Corps. They also collaborate with the Oregon Disaster Airlift Response Team (ODART), which has depot airports in Walla Walla and Bend, Oregon.

There are allot more great emergency response organizations looking for volunteers worth mentioning, such as the Salvation Army, Red Cross, or any

number of emergency communications groups. But we only have so much room in this edition, otherwise I would gladly list them all.

For more information on tsunami preparedness, OEM has published a downloadable Tsunami Evacuation Drill Guidebook to help communities plan and recover from a tsunami.

Along with that, the OEM has a playbook that addresses the actions to be taken in the event of a major earthquake from the Cascadia Subduction zone, which is also downloadable.

So, in the meantime, stay safe, and stay prepared.

Lynn Wilson, K7LW

From the FCC

I was looking through some of the GMRS forums the other day and ran across an interesting string pertaining to the use of DCS (Digitally Controlled Squelch) on GMRS frequencies. So first off, I know the question among some of our readers is; "What is the difference between DCS and DPL (Subaudible tone squelch)?" Well, I'm glad you asked. Digitally coded squelch, or simply DCS, transmits a digital code embedded within the transmitted signal in order to activate the receiver on the other end. Whereas CTCSS (Continuous Tone Coded Squelch System), uses a continuous analog tone to achieve pretty much the same function. Both methods offer significantly more privacy and code options, not to mention they both greatly help in the separating of adjacent repeaters. Simply put, DCS transmits a digital code, while CTCSS transmits a continuous, subaudible analog tone.

So, what's the beef among the GMRS world? Well, it seems that in some parts of the US there are GMRS users that are using digital voice modes such as DMR (Digital Mobile Radio) on GMRS channels. IAW FCC part **§ 95.1771** which addresses GMRS emission types, digital voice on GMRS frequencies is not permitted.

But in this case, it was the below FCC regulation that specifically caught the attention of most:

§ 95.377 Tones and signals.

Personal Radio Service stations that transmit voice emissions may also transmit audible or subaudible tones ***or other*** *signals* ***for the purpose of selective calling and/or receiver squelch activation.*** *These tones and signals are ancillary to voice communications and are considered to be included within the voice emission types, e.g., A3E, F3E, and G3E.*

Here is the important part of this regulation.

(a) Tones that are audible (having a frequency higher than 300 Hertz), must last no longer than 15 seconds at one time.

(b) Tones that are subaudible (having a frequency of 300 Hertz or less), may be transmitted continuously during a communication session.

Remember the definition of DCS and DPL. DCS transmits a "code" to the repeater in order to open up the receiver, whereas DPL transmits a continuous "subaudible tone" in order to open up the repeaters squelch. Where the beef is, is that some interpret the regulation as DCS being the same as DMR, therefore making it illegal on GMRS frequencies because it is a digital signal. So why not allow DMR since it's also a digital transmission? Here's the catch; *"Tones that are audible (having a frequency higher than 300 Hertz),* ***must last no longer than 15 seconds at one time****."* Remember, DCS transmissions are less that 300Hz, and are less than 15 seconds in duration. Whereas DMR lasts as long as the microphone is keyed, and is definitely higher than 300Hz. So no, DMR and DCS are not the same, not even close.

Just to take it one step further:

§ 95.1731 Permissible GMRS uses.

Digital data. *GMRS hand-held portable units* ***may transmit*** *digital data containing location information, or requesting location information from one or more other GMRS or FRS units, or containing a brief text message to another specific GMRS or FRS unit.*

And there you have it, on GMRS frequencies BOTH CTCSS AND DCS are allowed, along with other limited (short) digital transmissions, but DMR, or any other form of digital voice transmission is NOT allowed.

Lynn Wilson, K7LW/WRYF803

Emergency Communications

There is nothing going on this month that we're aware of, but stay tuned. If we hear of anything in the way of simulated emergency drills, or other such exercises we'll be sure and let our readers know about it.

- Please be aware that the WMDRA (W7NEO) does not officially participate in any of the above listed training. Although we do make our repeaters available to outside organizations provided prior arrangements have been made with WMDRA, and it is agreed upon by those organizations to abide by our policies. Otherwise, this information is simply made available to our users for informational purposes only.

Local Events

Given the current winter weather conditions, most all of the normal regular events such as Ham Fests, Swap Meets, etc. are pretty much all on hold until further notice. Hopefully once the weather warms up we can get back to normal and go back to holding our cherished nerd conventions once again. But should you have any knowledge of any upcoming events, or even something virtual locally going on, let us know and we'll try and get it in the next issue of the Review.

Thanks!

VE Testing

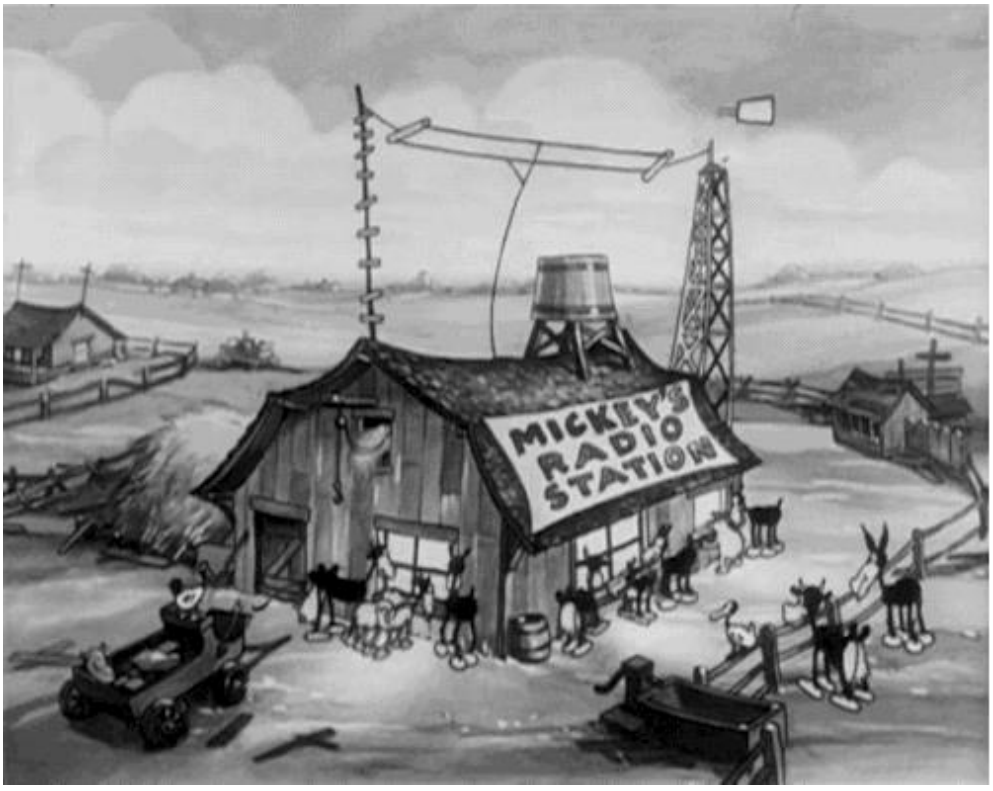
- There is no VE testing going on that we're aware of, but if you do have a regular test session taking place, feel free to let us know, and we'll post it here in the next issue of the Pickle Barrel Review.

The End

Well, that's about it for this edition of the Pickle Barrel Review, I hope you enjoyed it. We'll continue to keep trying to keep it fun, and interesting. So until next time, we here at the WMDRA (W7NEO) would like to wish all of you the very best for the New Year. But for now, feel free to reach in the barrel, and grab another pickle, there's plenty to go around, along with plenty of great conversation!

73,

Weston Mountain Digital Radio Association
W7NEO



Happy New Year!

“Any sufficiently advance technology is indistinguishable from magic”

- Arthur C. Clarke